GLOSSARY

ADC	: also known as an ADC or an A/D converter, it is an electronic circuit that measures a real-world signal and converts it to a digital representation of the signal.
DMA	: a capability provided by some computer bus architectures that enables data to be sent directly from an attached device, such as a disk drive, to the main memory on the computer's motherboard.
EMI	: unwanted noise or interference in an electrical path or circuit caused by an outside source.
HVDC	: a bulk power transfer technology using direct current for transmission of electricity, in contrast to HVAC power systems which operate on alternating current.
IPC	: formally called the institute for printed circuits, is a global association for the electronic manufacturing industry.
I2C	: a standard bidirectional interface that uses a controller, known as the master, to communicate with slave devices.
SPI	: is an interface bus commonly used to send data between microcontrollers and small peripherals such as shift registers, sensors, and SD cards.
UART	: universal asynchronous receiver/transmitter and defines a protocol, or set of rules, for exchanging serial data between two devices.

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APPENDIX

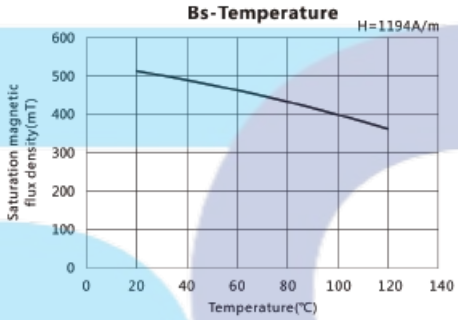
锰锌材料特性表与特性曲线 Material Characteristic Sheets and figures of **MnZn**

TDG

材料 / Material: TP4A

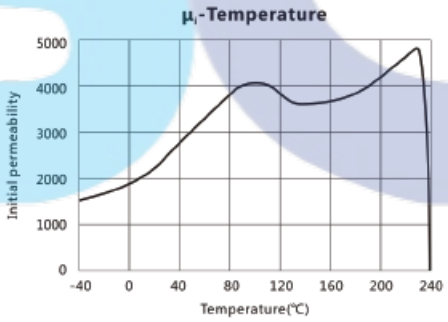
特点 / Features:

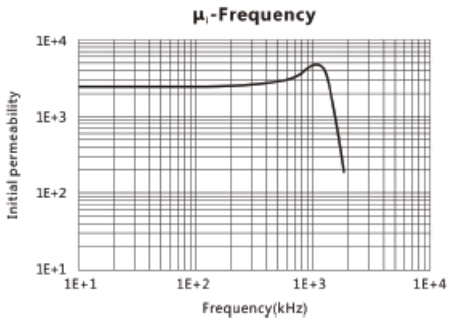
1. 主要应用于中频段(小于300kHz) / Mostly Used at Middle Frequency(Less than 300kHz)
2. 低磁心损耗，高饱和磁感应强度 / Low Core Loss and High Saturation Flux Density
3. 损耗最低的温度点约在90℃ / The Temperature Point of the Lowest Core Loss is 90℃

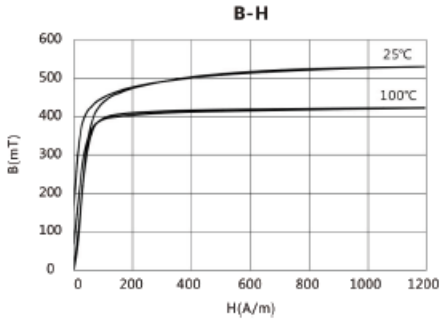


Initial permeability	μ_i	25℃	2400±25%
Saturation magnetic flux density	Bs(mT) 1194A/m	25℃	510
		100℃	390
Remanence	Br(mT)	25℃	110
		100℃	60
Coercivity	Hc(A/m)	25℃	13
		100℃	6.5
Core loss	Pcv(kW/m³) 100kHz 200mT	25℃	600
		100℃	300
		120℃	400
Curie temperature	Tc(℃)		≥215
Electrical resistivity	ρ(Ω·m)		6.5
Density	d(kg/m³)		4.8×10^{3}

Test core : Toroid(mm)
OD : 25
ID : 15
H : 7.5







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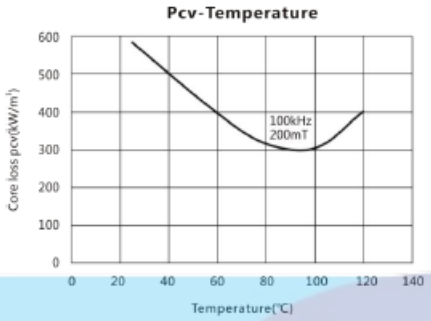
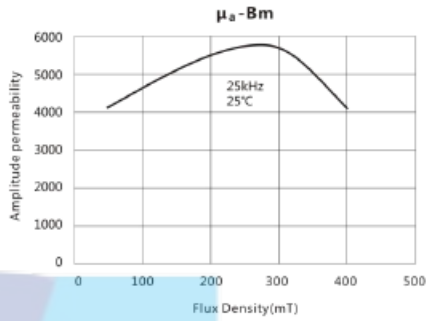
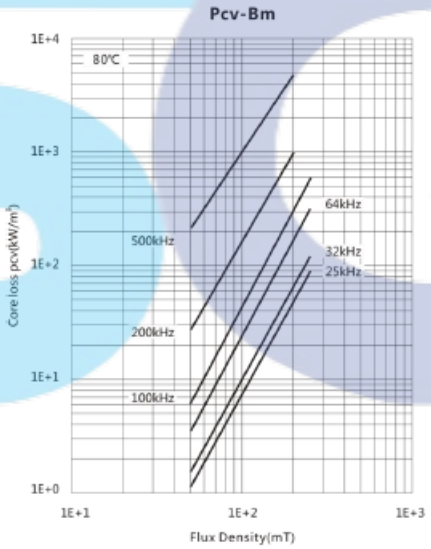
锰锌材料特性表与特性曲线 Material Characteristic Sheets and figures of **MnZn**

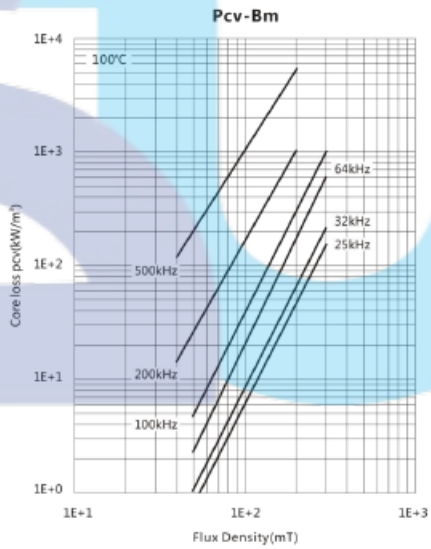
TDG

材料 / Material: **TP4A**









22

锰锌氧铁材料规格尺寸 Specification and Dimensions of **MnZn** Ferrtie Material

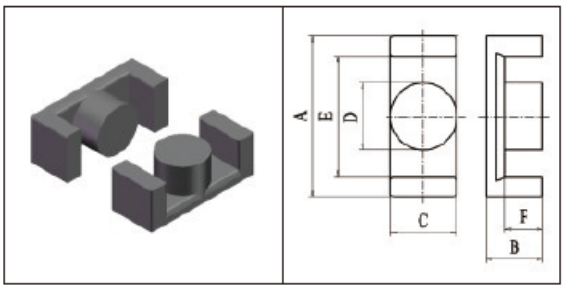


FIG.1

EER 型 / EER Core

型号 TYPE	图例 FIG.	尺寸 Dimensions (mm) A	B	C	D	E	F
EER16/15/5	1	16.3±0.4	7.5±0.2	5.0±0.3	5.0+0.15/-0.3	11.5min	5.35±0.2
EER19.8/8.2/6.6B	1	19.8±0.4	4.1±0.15	6.6±0.2	6±0.15	15.8±0.3	1.9±0.15
EER25/12.4/11	2	25±0.35	6.2±0.2	11±0.2	9.5±0.2	19.5±0.35	2.95±0.2
EER25/18/11C	2	25.0±0.3	9.05±0.15	11.0±0.15	9.5±0.15	19.5±0.3	5.8±0.15
ETD25/27/10	2	25+0.5/-0.3	13.4+0.4/-0	9.5±0.25	9.5±0.25	18.9min	9.7+0.4/-0
EER25.5/18/8G	2	25.5±0.5	9.3±0.3	7.5±0.3	7.5±0.3	19.6min	6.2±0.3
EER26.8/26.6/8.5	2	26.8±0.4	13.3±0.15	8.5±0.2	8.4±0.2	20.4±0.4	10±0.2
EER28/28/11A	2	28.5±0.6	14±0.3	11.4±0.3	9.9±0.3	21.2min	9.6±0.3
EER28/34/11B	2	28.5±0.6	16.9±0.3	11.4±0.3	9.9±0.3	21.2min	12.5±0.3
EER28/17/11	2	28.55±0.55	8.35±0.2	11.4±0.25	9.9±0.25	21.2min	5.15±0.15
EER28/18/7.5	1	28±0.4	9±0.2	7.5±0.2	7.5±0.2	22.4±0.5	6.1±0.25
EER29/28/11A	2	29.2±0.8	14.4±0.3	11.3±0.3	9.9±0.3	21.8min	10.1±0.3
EER29.4/39.2/11.4	2	29.4±0.5	19.6±0.25	11.4±0.25	9.9±0.2	22.6min	15.3±0.2
EER29.5/30.6/11.4A	2	29.5±0.5	30.6±0.4	11.4±0.25	9.9±0.25	22.1±0.5	19.2+0.5/-0.4
ETD29/32/10B	2	29.8±0.8	15.8±0.3	9.5±0.3	9.5±0.3	22.0min	11.0±0.3
EER30/19/20B	2	30.0±0.5	9.4±0.15	20.3±0.3	13.2+0.3/-0.2	25.0min	6.6±0.2
EER30/28/11	2	30±0.55	14.3±0.25	11.4±0.25	9.9±0.2	23min	9.9±0.2
EER30/33/11	2	30±0.55	16.9±0.25	11.4±0.25	9.9±0.25	23min	12.53±0.28
EER33/34/14F	2	33±0.6	17.3±0.3	14±0.3	12.5±0.3	24.7min	12.8±0.3
EER34/35/11B	2	34.2±0.8	17.6±0.2	10.8±0.3	10.8±0.3	25.6min	12.4±0.3
ETD34/34/11B	2	34.2±0.8	17.3±0.2	10.8±0.3	10.8±0.3	25.6min	12.1±0.3

TDG

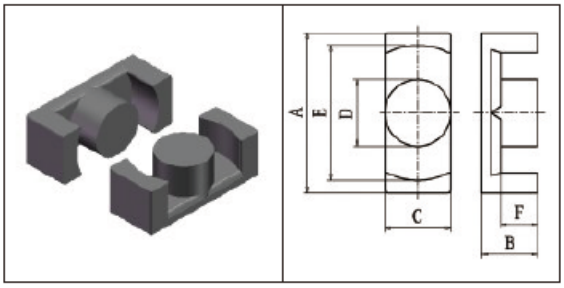


FIG.2

EER 型 / EER Core

型号 TYPE	图例 FIG.	参数 Parameters				AL(Ref)*		重量(Ref) g /PRS
		C1	Ae	Le	Ve	TP4A	TPW33	
EER16/15/5	1	1.66	21.10	35.12	741.00	1200	1500	3.82
EER19.8/8.2/6.6B	1	0.85	28.96	24.73	716.2	2300	2600	3.8
EER25/12.4/11	2	0.45	71.60	32.35	2316.30	4400	5400	12.40
EER25/18/11C	2	0.61	71.62	43.75	3133.40	3450	4450	15.89
ETD25/27/10	2	0.91	67.27	60.90	4096.70	2410	3300	21.30
EER25.5/18/8G	2	1.05	44.93	47.38	2128.70	2050	2600	10.70
EER26.8/26.6/8.5	2	1.10	57.01	62.93	3587.80	1900	2450	18.20
EER28/28/11A	2	0.73	85.88	62.85	5397.80	2800	4000	28.43
EER28/34/11B	2	0.87	85.20	74.38	6336.90	2550	3600	32.93
EER28/17/11	2	0.55	78.63	43.45	3416.30	3800	5200	17.80
EER28/18/7.5	1	1.11	44.2	49.11	2170.7	2000	2400	12.11
EER29/28/11A	2	0.78	84.48	65.63	5544.40	2700	3600	28.86
EER29.4/39.2/11.4	2	1.05	82.72	86.73	7174.40	2150	2900	33.80
EER29.5/30.6/11.4A	2	0.72	90.15	64.55	5819.20	2850	3640	33.80
ETD29/32/10B	2	0.93	75.91	70.78	5373.10	2250	3150	27.80
EER30/19/20B	2	0.35	136.04	47.36	6442.20	6100	8350	34.20
EER30/28/11	2	0.78	84.83	65.79	5581.10	3100	3600	29.02
EER30/33/11	2	0.91	84.05	76.24	6408.10	3100	3500	33.90
EER33/34/14F	2	0.62	126.95	78.58	9975.40	3800	5100	50.32
EER34/35/11B	2	0.83	96.50	80.26	7744.60	2600	3900	40.00
ETD34/34/11B	2	0.82	96.57	79.06	7634.60	2500	3900	39.51

*-AL为磁心对应参考值，具体规格以双方签订承认书为准；AL测试条件：1kHz 0.3V 10Ts；AL单位：nH/N2

*-图例仅展示产品形状，具体细节以实物或以双方签订承认书为准。

C.I.F

FR4 Data Sheet :-

Test/Specification	FR4 Laminate Typical Values
Thermal Stress, Solder bath 288 deg. C	>60
Dimensional Stability, E-2/150	<0.04% Warp/fill
	<1.00% Bow/Twist
Flammability, Classification UL94	V0
Water Absorption E-1/105	0.10%
Peel Strength After Thermal Stress	11 lb./in After 10s/288 Deg. C
Flexural Strength	100,000 lbf/in² Lengthwise
	75,000 lbf/in² Crosswise
Resistivity After Damp Heat Volume	10 ^8 M ohms cm
Resistivity After Damp Heat Surface	10 ^8 M ohms
Dielectric Breakdown. Parallel to laminate	>60KV
Dielectric Constant @ 1MHz	4.7
Dissipation Factor @ 1MHz	0.014
Q-Resonance @ 1 MHz	>75
Q-Resonance @ 50 MHz	>95
Arc Resistance	125 s
Glass Transition Temperature	135 Deg. C
Temperature Index	130 Deg. C
A Few Other Relevant Facts from other Sources	
Specific Gravity	1.8-1.9
Rockwell Hardness (M scale)	110
Coefficient of Thermal Expansion	11 microns/m/Deg.C Lengthwise
	15 microns/m/Deg.C Crosswise
Thermal Conductivity	2.2-2.5 cal/h. cm Deg C

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STM32F105xx
STM32F107xx

Connectivity line, ARM®-based 32-bit MCU with 64/256 KB Flash, USB OTG, Ethernet, 10 timers, 2 CANs, 2 ADCs, 14 communication interfaces

Datasheet - production data

Features

- Core: ARM® 32-bit Cortex®-M3 CPU
  - 72 MHz maximum frequency, 1.25 DMIPS/MHz (Dhrystone 2.1) performance at 0 wait state memory access
  - Single-cycle multiplication and hardware division
- Memories
  - 64 to 256 Kbytes of Flash memory
  - 64 Kbytes of general-purpose SRAM
- Clock, reset and supply management
  - 2.0 to 3.6 V application supply and I/Os
  - POR, PDR, and programmable voltage detector (PVD)
  - 3-to-25 MHz crystal oscillator
  - Internal 8 MHz factory-trimmed RC
  - Internal 40 kHz RC with calibration
  - 32 kHz oscillator for RTC with calibration
- Low power
  - Sleep, Stop and Standby modes
  - VBAT supply for RTC and backup registers
- 2 × 12-bit, 1 µs A/D converters (16 channels)
  - Conversion range: 0 to 3.6 V
  - Sample and hold capability
  - Temperature sensor
  - up to 2 MSPS in interleaved mode
- 2 × 12-bit D/A converters
- DMA: 12-channel DMA controller
  - Supported peripherals: timers, ADCs, DAC, I2Ss, SPIs, I2Cs and USARTs
- Debug mode
  - Serial wire debug (SWD) & JTAG interfaces
  - Cortex®-M3 Embedded Trace Macrocell™
- Up to 80 fast I/O ports
  - 51/80 I/Os, all mappable on 16 external interrupt vectors and almost all 5 V-tolerant
- CRC calculation unit, 96-bit unique ID

LQFP100 14 × 14 mm
LQFP64 10 × 10 mm

LFBGA100 10 × 10 mm

- Up to 10 timers with pinout remap capability
  - Up to four 16-bit timers, each with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input
  - 1 × 16-bit motor control PWM timer with dead-time generation and emergency stop
  - 2 × watchdog timers (Independent and Window)
  - SysTick timer: a 24-bit downcounter
  - 2 × 16-bit basic timers to drive the DAC
- Up to 14 communication interfaces with pinout remap capability
  - Up to 2 × I2C interfaces (SMBus/PMBus)
  - Up to 5 USARTs (ISO 7816 interface, LIN, IrDA capability, modem control)
  - Up to 3 SPIs (18 Mbit/s), 2 with a multiplexed I2S interface that offers audio class accuracy via advanced PLL schemes
  - 2 × CAN interfaces (2.0B Active) with 512 bytes of dedicated SRAM
  - USB 2.0 full-speed device/host/OTG controller with on-chip PHY that supports HNP/SRP/ID with 1.25 Kbytes of dedicated SRAM
  - 10/100 Ethernet MAC with dedicated DMA and SRAM (4 Kbytes): IEEE1588 hardware support, MII/RMII available on all packages

Table 1. Device summary

Reference	Part number
STM32F105xx	STM32F105R8, STM32F105V8 STM32F105RB, STM32F105VB STM32F105RC, STM32F105VC
STM32F107xx	STM32F107RB, STM32F107VB STM32F107RC, STM32F107VC

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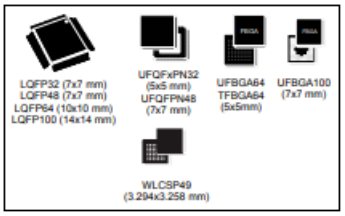
STM32L072x8 STM32L072xB STM32L072xZ

Ultra-low-power 32-bit MCU Arm®-based Cortex®-M0+, up to 192KB Flash, 20KB SRAM, 6KB EEPROM, USB, ADC, DACs

Datasheet - production data

Features

- Ultra-low-power platform
  - 1.65 V to 3.6 V power supply
  - -40 to 125 °C temperature range
  - 0.29 µA Standby mode (3 wakeup pins)
  - 0.43 µA Stop mode (16 wakeup lines)
  - 0.86 µA Stop mode + RTC + 20-Kbyte RAM retention
  - Down to 93 µA/MHz in Run mode
  - 5 µs wakeup time (from Flash memory)
  - 41 µA 12-bit ADC conversion at 10 ksps
- Core: Arm® 32-bit Cortex®-M0+ with MPU
  - From 32 kHz up to 32 MHz max.
  - 0.95 DMIPS/MHz
- Memories
  - Up to 192-Kbyte Flash memory with ECC(2 banks with read-while-write capability)
  - 20 -Kbyte RAM
  - 6 Kbytes of data EEPROM with ECC
  - 20-byte backup register
  - Sector protection against R/W operation
- Up to 84 fast I/Os (78 I/Os 5V tolerant)
- Reset and supply management
  - Ultra-safe, low-power BOR (brownout reset) with 5 selectable thresholds
  - Ultra-low-power POR/PDR
  - Programmable voltage detector (PVD)
- Clock sources
  - 1 to 25 MHz crystal oscillator
  - 32 kHz oscillator for RTC with calibration
  - High speed internal 16 MHz factory-trimmed RC (+/- 1%)
  - Internal low-power 37 kHz RC
  - Internal multispeed low-power 65 kHz to 4.2 MHz RC
  - Internal self calibration of 48 MHz RC for USB
  - PLL for CPU clock
- Pre-programmed bootloader
  - USB, USART supported
- Development support
  - Serial wire debug supported



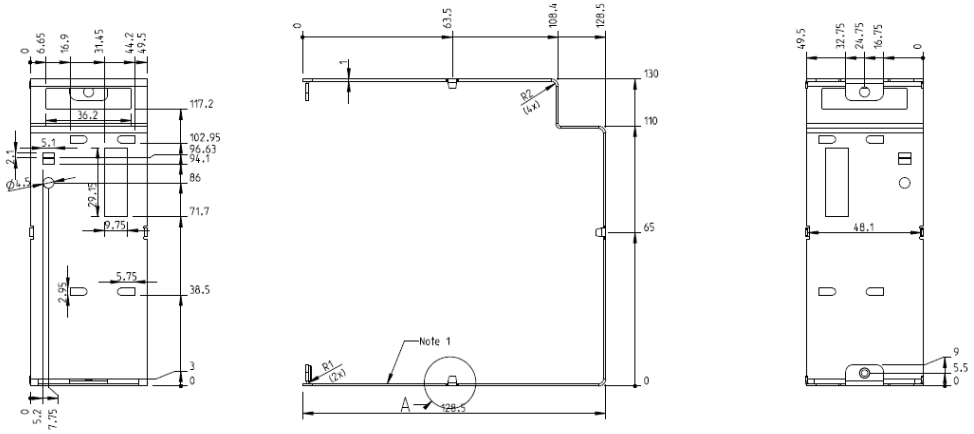
- Rich Analog peripherals
  - 12-bit ADC 1.14 Msps up to 16 channels (down to 1.65 V)
  - 2 x 12-bit channel DACs with output buffers (down to 1.8 V)
  - 2x ultra-low-power comparators (window mode and wake up capability, down to 1.65 V)
- Up to 24 capacitive sensing channels supporting touchkey, linear and rotary touch sensors
- 7-channel DMA controller, supporting ADC, SPI, I2C, USART, DAC, Timers
- 11x peripheral communication interfaces
  - 1x USB 2.0 crystal-less, battery charging detection and LPM
  - 4x USART (2 with ISO 7816, IrDA), 1x UART (low power)
  - Up to 6x SPI 16 Mbits/s
  - 3x I2C (2 with SMBus/PMBus)
- 11x timers: 2x 16-bit with up to 4 channels, 2x 16-bit with up to 2 channels, 1x 16-bit ultra-low-power timer, 1x SysTick, 1x RTC, 2x 16-bit basic for DAC, and 2x watchdogs (independent/window)
- CRC calculation unit, 96-bit unique ID
- True RNG and firewall protection
- All packages are ECOPACK2

Table 1. Device summary

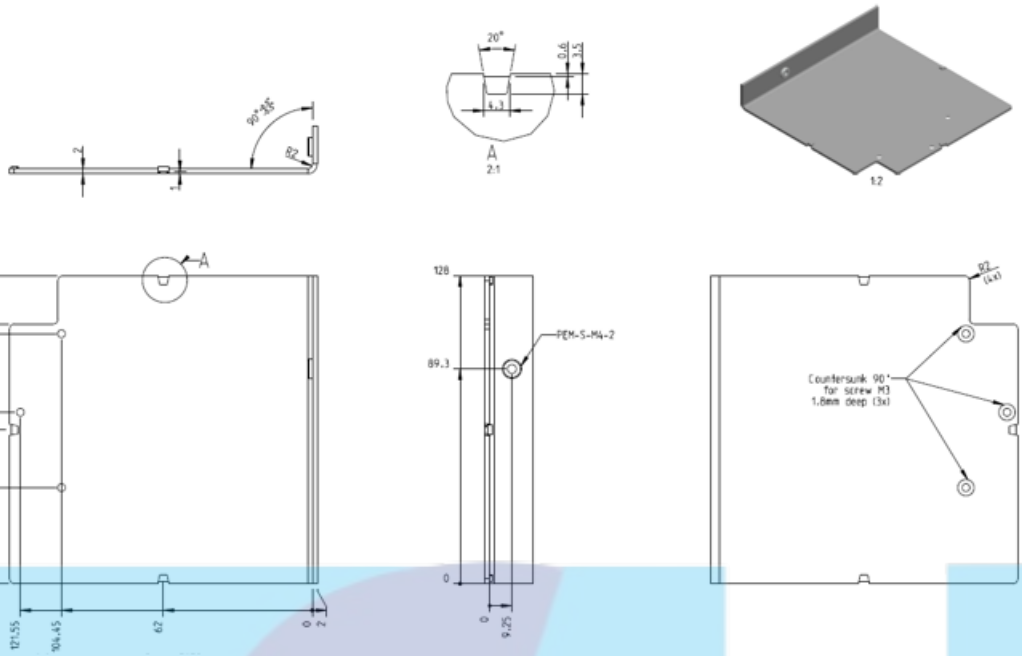
Reference	Part number
STM32L072x8	STM32L072V8
STM32L072xB	STM32L072VB, STM32L072RB, STM32L072CB, STM32L072KB
STM32L072xZ	STM32L072VZ, STM32L072RZ, STM32L072CZ, STM32L072KZ

November 2019 DS10689 Rev 5 1/160

This is information on a product in full production. www.st.com


Note 1
A
8:5
1:2
PEM-BSO-3_5-M3-6
(5x)
Note 1
Countersunk 90°
for screw M3
1.8mm deep
PEM-S-M4-2
(2x)

tes:



Technische Daten / Technical Specifications

(de) DEUTSCH		(en) ENGLISH		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Eingangsdaten		**Input data**					
Minimum input voltage	DC input nominal	Minimum input voltage	DC input nominal	600 VDC			
	Blackout Band		Blackout Band	0 ... 400 VDC			
	Emergency Band		Emergency Band	400 ... 600 VDC			
Maximum input voltage	DC input nominal	Maximum input voltage	DC input nominal	750 VDC			
	Overvoltage error		Overvoltage error	>1200 VDC			
	Overvoltage band		Overvoltage band	880...1200 VDC			
	Surge for 5 sec		Surge for 5 sec	800 ... 880 VDC			
Reverse polarity protection (L+, L- Reverse polarity @ DC input nominal)		Reverse polarity protection (L+, L- Reverse polarity @ DC input nominal)		100 % Vin			
Inrush current (2Sµ²/W, @UN, IN)		Inrush current (2Sµ²/W, @UN, IN)		TBD A			
Holdup time (DC-Link < 400VDC)		Holdup time (DC-Link < 400VDC)		>20 ms			
Stand-by input power (@ PC completed)		Stand-by input power (@ PC completed)		7 W			
Maximum own capacity (typ. @ 2Sµ²/W, @UN, IN)		Maximum own capacity (typ. @ 2Sµ²/W, @UN, IN)		100 µF			
Internal or external fuse(s) (for max. inrush current 2S A²s)		Internal or external fuse(s) (for max. inrush current 2S A²s)		5 A			
Ausgangsdaten DC-Bus		**Output data DC-Bus**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Nominal output voltage (DC+ Charge OUT)		Nominal output voltage (DC+ Charge OUT)		400–500 VDC			
DC Charge current (max.)		DC Charge current (max.)		0,4 A	0,4 A	1 A	5 A
Over current protection type (Charge Out)		Over current protection type (Charge Out)		Constant current			
Output power - Peak @750VDC		Output power - Peak @750VDC		300 W	300 W	750 W	3750 W
Output energy - Nominal (during pre max. charge time 2s, @IN, 650VDC)		Output energy - Nominal (during pre max. charge time 2s, @IN, 650VDC)		520 Ws	520 Ws	1300 Ws	6500 Ws
Output energy - Peak (during pre max. charge time 2s, @IN, 750VDC)		Output energy - Peak (during pre max. charge time 2s, @IN, 750VDC)		1200 Ws	1200 Ws	3000 Ws	15000 Ws
Maximum capacitive load to PC DC-Sector (25µF/kW, @UN, IN)		Maximum capacitive load to PC DC-Sector (25µF/kW, @UN, IN)		0,72 mF	0,72 mF	1,63 mF	8,13 mF
Pre charge time		Pre charge time		2 s (max. 4s)			
Minimum load during pre charge (3mA/kW up to 10s @UN, IN)		Minimum load during pre charge (3mA/kW up to 10s @UN, IN)		78 mA	78 mA	195 mA	975 mA
Ausgangsdaten Signal		**Output data DC-Bus Signal**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Peak output current (depending on used relays)		Peak output current (depending on used relays)		4,5 A			
Maximum continuous output current (depending on used relays)		Maximum continuous output current (depending on used relays)		1,5 A			
Output voltage (+ 20%)		Output voltage (+ 20%)		24 VDC			
Umgebungsbedingungen		**Environmental conditions**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Umgebungstemperatur_Betrieb / Lagerung (Transport)		Ambient temperature, operational / storage (transport)		-25...+70 °C* / -40...+85 °C			
Over temperature protection		Over temperature protection		switch-off			
Max. zul. Luftfeuchtigkeit im Betrieb (non-condensing, IEC60068-30/56)		Max. permitted humidity during operation (non-condensing, IEC60068-30/56)		5 %...95 % RH			
Allgemeine Daten		**General data**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Vorgesehen für DC-Grid bis (@50°C Umgebung)		Vorgesehen für DC-Grid bis (@50°C Umgebung)		40,5 A	40,5 A	100,5 A	500,5 A
Schutzart		Degree of protection		IP20			
Schutzklasse mit PE-Anschluss		Protection class with PE connection		I			
Überspannungskategorie gemäß EN 61010-1 / UL 61010-1		Overvoltage category according to EN 61010-1 / UL 61010-1		II / III			
Verschmutzungsgrad gemäß EN 60664-1 oder UL 62368		Pollution degree according to EN 60664-1 or UL 62368		2			
Isolationsspannung Eingang–Ausgang / Eingang–Erde / Ausgang–Erde		Insulation voltage input–output / input–earth / output–earth		6 kV AC / 6kV AC / 6 kV AC, 1 min.			
Metallgehäuse		Metal housing		✓			
Einbaulage (Derating beachten)		Mounting position (Derating beachten)		beliebig / any			
Maximum operating altitude		Maximum operating altitude		up to 5000 m			
MTBF (SN 29500)		MTBF (SN 29500)		> 1800000 h (25 °C) / > 1000000 h (40 °C) / > 480000 h (60 °C)			
Höhe x Breite x Tiefe		Height x Width x Depth		130 x 50 x 130 mm			
Gewicht		Weight		tbd kg	tbd kg	tbd kg	tbd kg
Anschlussdaten		**Connection data**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
PUSH IN Power Connector	Anzahl Klemmen	PUSH IN Power Connector 2492130000	Number of terminals	4 (L+, PE, L-, PC L+)			
	Leiterquerschnitt starr		Rigid wire cross-section	0.5...16 mm²			
	Leiterquerschnitt flexibel		Flexible wire cross-section	0.5...25 mm²			
	Leiterquerschnitt AWG		Wire cross-section AWG	18...4			
	Abisolierlänge		Insulation stripping length	18 mm			
	Schraubendreherklinge		Screwdriver blade	0.8 x 4.0 mm			
PUSH IN Signal Connector	Anzahl Klemmen	PUSH IN Signal Connector	Number of terminals	6 (En, GND, Er, Er, Rp, GND)	10 (Th, GND, En, GND, Er, Er, Rp, GND, 24V, GND)		
	Leiterquerschnitt starr		Rigid wire cross-section	0.2...1.5 mm²			
	Leiterquerschnitt flexibel		Flexible wire cross-section	0.2...1.5 mm²			
	Leiterquerschnitt AWG		Wire cross-section AWG	28...14			
	Abisolierlänge		Insulation stripping length	8 mm			
	Schraubendreherklinge		Screwdriver blade	0.4 x 2.5 mm			
EMV / Schock / Vibration		**EMC / shock / vibration**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Störaussendung gemäß		Interference radiation acc. to		DIN EN IEC 61000-6-4			
Störfestigkeitsprüfungen gemäß		Interference immunity tests acc. to		DIN EN IEC 61000-6-2			
DC Grid variation 400...880VDC		DC Grid variation 400...880VDC		System concept DC industry			
Festigkeit gegen Schock gemäß IEC 60068-2-27		Shock resistance according to IEC 60068-2-27		30 g			
Festigkeit gegen Vibration gemäß IEC 60068-2-6		Vibration resistance according to IEC 60068-2-6		4 g			
Elektrische Sicherheit		**Electrical safety**		MAX PCU DC650 40	TOP PCU DC650 40	TOP PCU DC650 100	TOP PCU DC650 500
Angewandte Normen		Applied standards		EN/IEC/UL 61010-1, EN/IEC/UL 61010-2-201			
Schutzkleinspannung gemäß		Extra-low safety voltage acc. to		SELV, EN 62368-1, PELV, EN 60204-1			
Sichere Trennung / Schutz gegen elektrischen Schlag		Protective isolation / protection against electrical shock		VDE 0100-410 / DIN 57100-410			
Schutz gegen gefährliche Körperströme		Bodily protection against dangerous electrical shock		VDE 0106-101			

1) siehe Derating-Kurve / see derating curve

(de) **Bedienungsanleitung**
Vorladesteuerung
(en) **Operating Instructions**
Pre Charge Unit

Weidmüller
Weidmüller Interface GmbH & Co. KG
Klingenbergstraße 26
32758 Detmold, Germany
T +49 5231 14-0
F +49 5231 14-292083
www.weidmueller.com

2909930000/03/09.2022

Produktfamilie

MAX PCU DC650 40	2921580000
TOP PCU DC650 40	2921590000
TOP PCU DC650 100	2921600000
TOP PCU DC650 500	2921610000

Zubehör / Accessories / Accessoires / Accessori / Accesorios / 附件

MTA 30 MF	1251320000
MTA 45 MF	1251310000

Abbildung ähnlich / Illustration similar

(de) **Sicherheits- und Warnhinweise**

WARNUNG

Das Gerät ist nur für die in der Bedienungsanleitung beschriebene Anwendung bestimmt.
Eine andere Verwendung ist unzulässig und kann zu Unfällen oder zur Zerstörung des Gerätes führen.

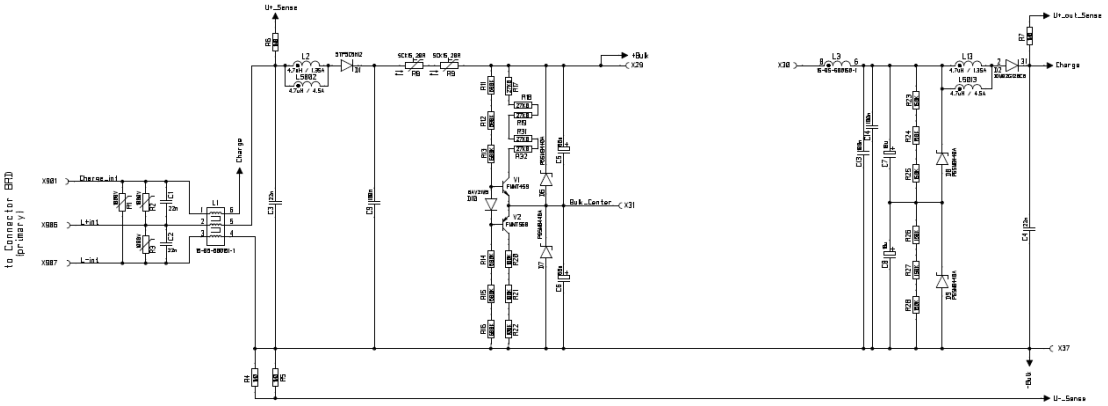
Die Verwendung des Gerätes in einer nicht zugelassenen Anwendung führt zu einem sofortigen Erlöschen jeglicher Garantie- und Gewährleistungsansprüche des Anwenders gegenüber dem Hersteller.

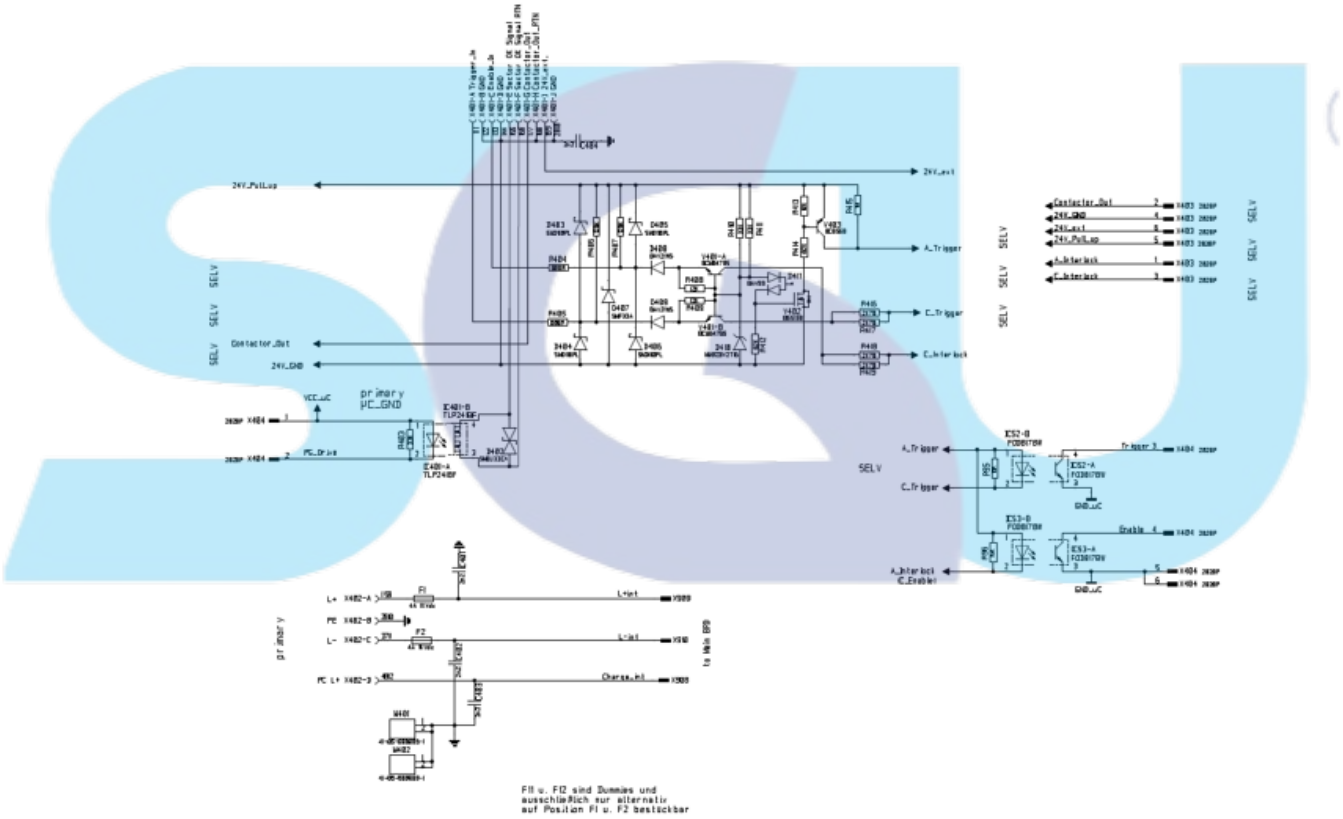
(en) **Safety Notices and Warnings**

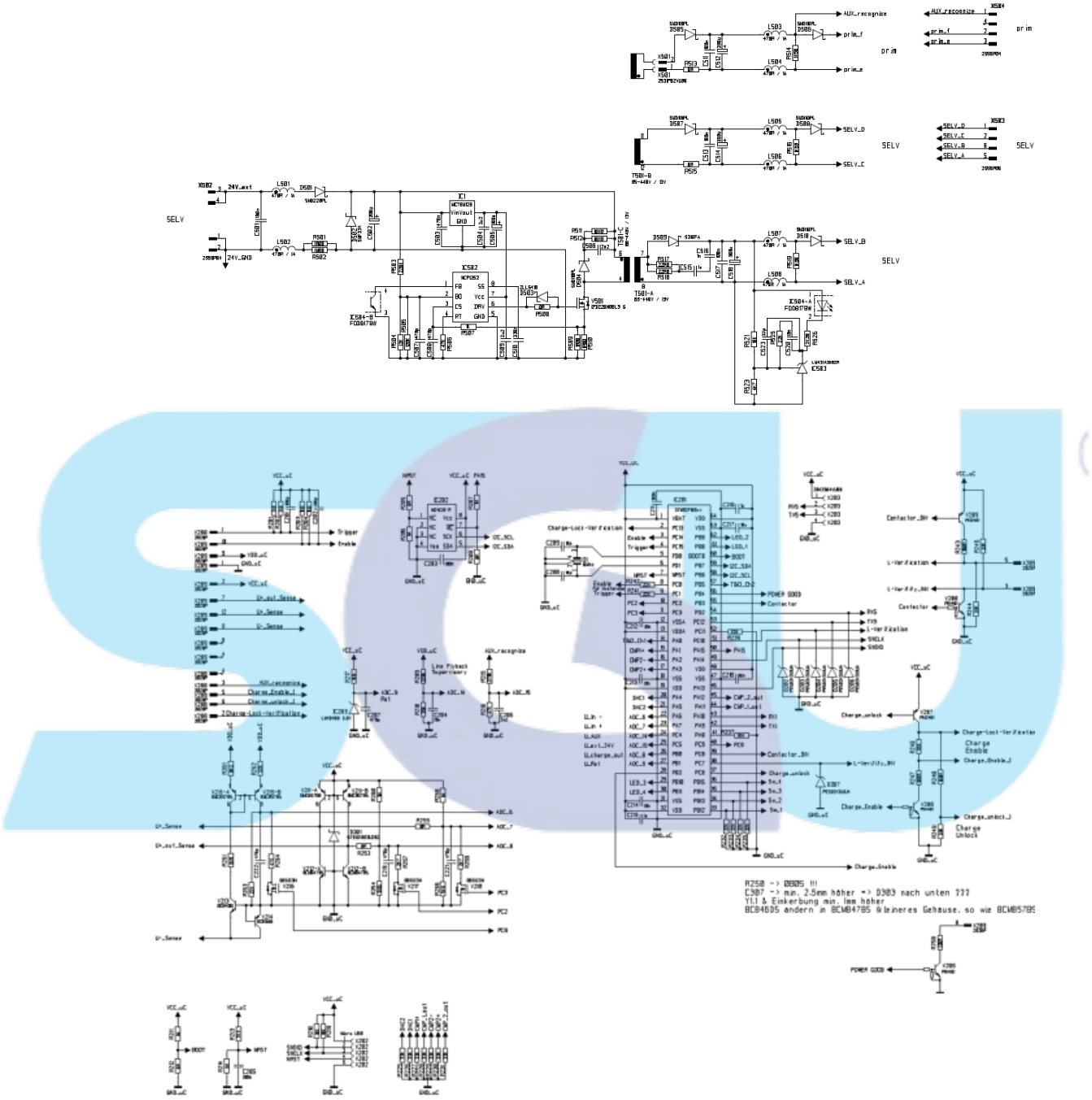
WARNING

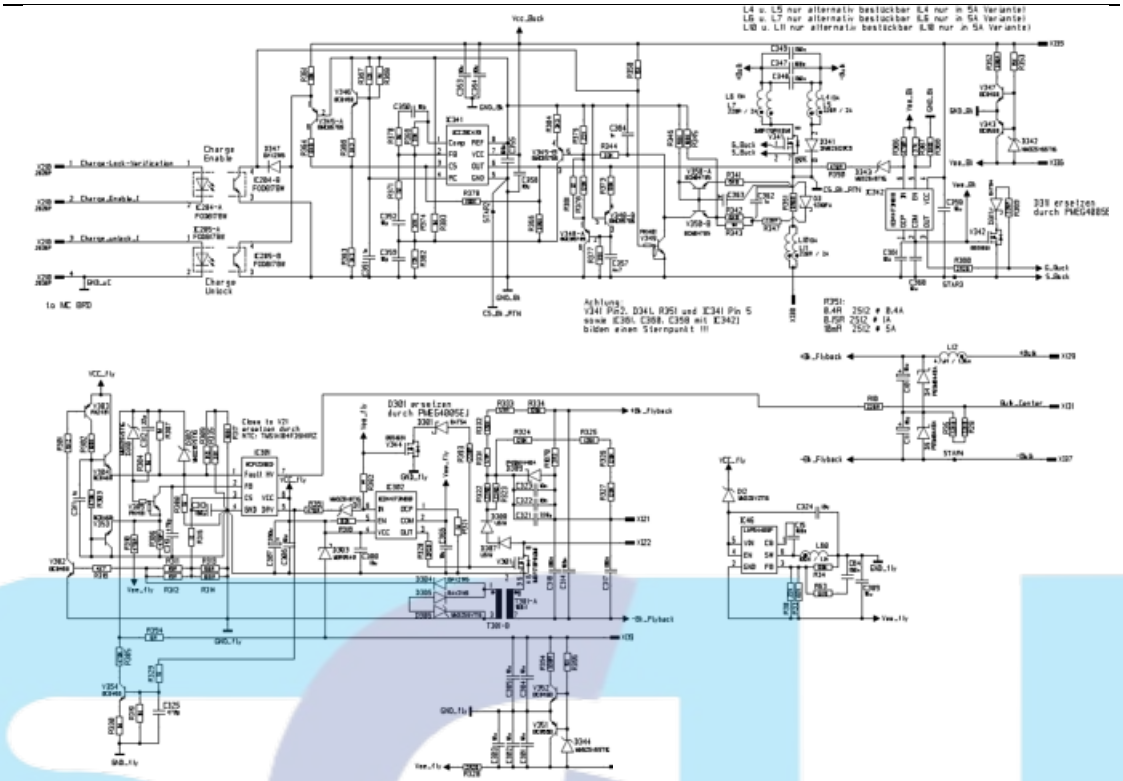
This device is only intended for use as described in the operating instructions. Any other type of usage is forbidden and can lead to accidents or destruction of the device.

Using the device in non-approved applications will lead immediately to the expiration of all guarantee and warranty claims on the part of the operator against the manufacturer.






R250 -> 0805 !!!
C307 -> min. 2.5mm höher -> D303 nach unten ???
Y1.1 & Einkerbung min. 1mm höher
BC84805 andern in BCM84785 (kleineres Gehäuse, so wie BCM857BS



00			TOP PCU DC950 40				
00			Cover DC PCU				
00			Chassis Right ASM 11-093				
00			Chassis Right DC PCU				
00			INS MYLAR A Chassis Right DC PCU				
			Combi Screw M3x6 Head DIN 7985 A2 Form Z				
00			Mainboard ASM TH 11-093				
			X1-CAP 0.022uF 440Vac 1000Vdc 10% 110°C 18x6x12	1 PC	C1	KEMET | Vishay | Vishay	R474I222050A1K057 | F339X132248MFM280 | F339X132248MFP280
			X1-CAP 0.022uF 440Vac 1000Vdc 10% 110°C 18x6x12	1 PC	C2	KEMET | Vishay | Vishay	R474I222050A1K057 | F339X132248MFM280 | F339X132248MFP280
			X1-CAP 0.022uF 440Vac 1000Vdc 10% 110°C 18x6x12	1 PC	C3	KEMET | Vishay | Vishay	R474I222050A1K057 | F339X132248MFM280 | F339X132248MFP280
			X1-CAP 0.022uF 440Vac 1000Vdc 10% 110°C 18x6x12	1 PC	C4	KEMET | Vishay | Vishay	R474I222050A1K057 | F339X132248MFM280 | F339X132248MFP280
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C10	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C11	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C7	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C8	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C5	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
			E-CAP 18uF 450V 20% 10x20 (10x25) 105deg 10000h KXN	1 PC	C6	NCC | NCC | Rubycon	EKXN451ELL180MJ20S | EKXL451ELL180MJ25S | 450BXW18MEFR10x25
	88-05-G00032-X	88-05-680256-2 | 88-05-680257-6	E-CAP 390uF 35V 20% 8x20 105deg	1 PC	C57	NCC|RUBYCON	EKZM350ETD391MH20D|35ZLH390MTB×20
	88-05-G00032-X	88-05-680256-2 | 88-05-680257-6	E-CAP 390uF 35V 20% 8x20 105deg	1 PC	C87	NCC|RUBYCON	EKZM350ETD391MH20D|35ZLH390MTB×20
			E-CAP 680uF 25V 20% 10x16 105deg ZLJ	1 PC	C62	RUBYCON | NCC | Rubycon | Panasonic	25ZLH680MEFC10X16 | EKYB250ELL681MJ16S | 25ZLJ680M10X16 | EEU-FR1E681B
			E-CAP 680uF 25V 20% 10x16 105deg ZLJ	1 PC	C74	RUBYCON | NCC | Rubycon | Panasonic	25ZLH680MEFC10X16 | EKYB250ELL681MJ16S | 25ZLJ680M10X16 | EEU-FR1E681B
			E-CAP 1000uF 25V 20% 10x23 105deg KYB	1 PC	C51	NCC | RUBYCON	EKYB250ELL102MJ20S | 25ZLH1000MEFC10X23 | 25ZLJ1000M10X20
		88-05-680264-2 | 88-05-680190-6	E-CAP 1000uF 35V 20% 12.5x20 105deg KZM	1 PC	C94	NCC|RUBYCON	EKZM350ELL102MM20S|35ZLH103MEFC12.5x20
	96-05-130085-X	96-05-001199-B	IC-OPTOCOUPLER FOD817B300W DIP-4	1 PC	IC44	ONSEMI	FOD817B300W
	96-05-130085-X	96-05-001199-B	IC-OPTOCOUPLER FOD817B300W DIP-4	1 PC	IC45	ONSEMI	FOD817B300W
	96-05-130085-X	96-05-001199-B	IC-OPTOCOUPLER FOD817B300W DIP-4	1 PC	IC52	ONSEMI	FOD817B300W
	96-05-130085-X	96-05-001199-B	IC-OPTOCOUPLER FOD817B300W DIP-4	1 PC	IC53	ONSEMI	FOD817B300W
		15-05-600151-1	3-fach CMC TBD	1 PC	L1	AECONVERSION	15-05-600151-1
		15-05-600150-1	Choke ER28 TBD	1 PC	L3	AECONVERSION	15-05-600150-1
		99-05-030096-J	VDR-1000V TVR14102-D	1 PC	R1	THINKING	TVR14102KSW
		99-05-030096-J	VDR-1000V TVR14102-D	1 PC	R2	THINKING	TVR14102KSW
		99-05-030096-J	VDR-1000V TVR14102-D	1 PC	R3	THINKING	TVR14102KSW
			MF-RES 1M 2W 5% 3KV	1 PC	R4	YAGEO	HHV25SIT-52-1MY
			MF-RES 1M 2W 5% 3KV	1 PC	R4	YAGEO	HHV25SIT-52-1MY
			MF-RES 1M 2W 5% 3KV	1 PC	R5	YAGEO	HHV25SIT-52-1MY
			MF-RES 1M 2W 5% 3KV	1 PC	R6	YAGEO	HHV25SIT-52-1MY
			MF-RES 1M 2W 5% 3KV	1 PC	R7	YAGEO	HHV25SIT-52-1MY
	76-05-U93908-X	76-05-U92065-3 | 76-05-U92016-H	NTC-20R 25deg 20% /15% (not 100% sure)	1 PC	R8	THINKING|JOYIN	SCK15204MFY|JNR15S200L87YU4
	76-05-U93908-X	76-05-U92065-3 | 76-05-U92016-H	NTC-20R 25deg 20% /15% (not 100% sure)	1 PC	R9	THINKING|JOYIN	SCK15204MFY|JNR15S200L87YU4
		15-05-600149-1	Trafo ER28 TBD	1 PC	T1	AECONVERSION	15-05-600149-1
00			Mainboard ASM SMD 11-093				
	81-05-G00136-X	81-05-971237-A | 81-05-971237-L	CHIP-CAP 100nF 100V 10% 0603 X7R	1 PC	C42	MURATA|AVX	GRM188R72A104KA35D|06031C104KAT2A
	81-05-G00136-X	81-05-971237-A | 81-05-971237-L	CHIP-CAP 100nF 100V 10% 0603 X7R	1 PC	C82	MURATA|AVX	GRM188R72A104KA35D|06031C104KAT2A
	81-05-772237-1	81-05-772237-2 | 81-05-772237-L | 81-05-772237-Z	CHIP-CAP 100nF 50V 10% 0805 X7R	1 PC	C58	KEMET|AVX|WALSIN	C0805C104K5RAC|08055C104KAT2A|0805B104K500CT
	81-05-772237-1	81-05-772237-2 | 81-05-772237-L | 81-05-772237-Z	CHIP-CAP 100nF 50V 10% 0805 X7R	1 PC	C61	KEMET|AVX|WALSIN	C0805C104K5RAC|08055C104KAT2A|0805B104K500CT
	81-05-772237-1	81-05-772237-2 | 81-05-772237-L | 81-05-772237-Z	CHIP-CAP 100nF 50V 10% 0805 X7R	1 PC	C73	KEMET|AVX|WALSIN	C0805C104K5RAC|08055C104KAT2A|0805B104K500CT
	81-05-772237-1	81-05-772237-2 | 81-05-772237-L | 81-05-772237-Z	CHIP-CAP 100nF 50V 10% 0805 X7R	1 PC	C85	KEMET|AVX|WALSIN	C0805C104K5RAC|08055C104KAT2A|0805B104K500CT
	81-05-772237-1	81-05-772237-2 | 81-05-772237-L | 81-05-772237-Z	CHIP-CAP 100nF 50V 10% 0805 X7R	1 PC	C93	KEMET|AVX|WALSIN	C0805C104K5RAC|08055C104KAT2A|0805B104K500CT
	81-05-472213-1	81-05-472213-2 | 81-05-472213-L	CHIP-CAP 1nF 200V 10% 0805 X7R	1 PC	C71	KEMET|AVX	C0805C102K2RAC|08052C102KAT2A
	81-05-472213-1	81-05-472213-2 | 81-05-472213-L	CHIP-CAP 1nF 200V 10% 0805 X7R	1 PC	C72	KEMET|AVX	C0805C102K2RAC|08052C102KAT2A
	81-05-572249-X	81-05-572249-|81-05-572249-F	CHIP-CAP 1uF 25V 10% 0805 X7R	1 PC	C52	MURATA|TAIYO	GRM21BR71E105KA99L|TMK212B7105KG-T
	81-05-572249-X	81-05-572249-|81-05-572249-F	CHIP-CAP 1uF 25V 10% 0805 X7R	1 PC	C53	MURATA|TAIYO	GRM21BR71E105KA99L|TMK212B7105KG-T
	81-05-572249-X	81-05-572249-|81-05-572249-F	CHIP-CAP 1uF 25V 10% 0805 X7R	1 PC	C54	MURATA|TAIYO	GRM21BR71E105KA99L|TMK212B7105KG-T
	81-05-472217-1	81-05-472217-2 | 81-05-472217-L	CHIP-CAP 2.2nF 200V 10% 0805 X7R	1 PC	C91	KEMET|AVX	C0805C222K2RAC7800|08052C222KAT2A
	81-05-472217-1	81-05-472217-2 | 81-05-472217-L	CHIP-CAP 2.2nF 200V 10% 0805 X7R	1 PC	C92	KEMET|AVX	C0805C222K2RAC7800|08052C222KAT2A
		81-05-773253-G | 81-05-773253-N | 81-05-773253-L	CHIP-CAP 4.7uF 50V 10% 1206 X7R	1 PC	C59	TDK|MURATA|AVX	C3216X7R1H475K160AE|GRM31CR71H475KA|12065C475KAT2A
	81-05-773253-X	81-05-773253-A | 81-05-773253-N | 81-05-773253-L	CHIP-CAP 4.7uF 50V 10% 1206 X7R	1 PC	C65	MURATA|SAMSUNG|AVX	GRM31CR71H475KA|CL31B475KBHNNNE|12065C475KAT2A
		81-05-773253-G | 81-05-773253-N | 81-05-773253-L	CHIP-CAP 4.7uF 50V 10% 1206 X7R	1 PC	C86	TDK|MURATA|AVX	C3216X7R1H475K160AE|GRM31CR71H475KA|12065C475KAT2A
		81-05-773253-G | 81-05-773253-N | 81-05-773253-L	CHIP-CAP 4.7uF 50V 10% 1206 X7R	1 PC	C88	TDK|MURATA|AVX	C3216X7R1H475K160AE|GRM31CR71H475KA|12065C475KAT2A
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C310	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C320	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C43	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C44	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C45	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C46	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G | 81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1 PC	C47	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR

	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C47	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C48	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C49	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C63	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C64	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C75	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C76	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C77	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C78	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C79	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C80	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00169-X	81-05-673201-G|81-05-673201-F	CHIP CAP 10uF 35V 10% 1206 X7R	1	PC	C81	TDK|TAIYO YUDEN	CGA5L1X7R1V106K160AE|GMK316AB7106KL-TR
	81-05-G00007-X	81-05-675237-2|81-05-675237-7	CHIP-CAP 100nF 1000V 10% 1812 X7R	1	PC	C12	KEMET|SYFER	C1812V104KDRACTU|1812Y1K00104KTWS2
	81-05-G00007-X	81-05-675237-2|81-05-675237-7	CHIP-CAP 100nF 1000V 10% 1812 X7R	1	PC	C13	KEMET|SYFER	C1812V104KDRACTU|1812Y1K00104KTWS2
	81-05-G00007-X	81-05-675237-2|81-05-675237-7	CHIP-CAP 100nF 1000V 10% 1812 X7R	1	PC	C9	KEMET|SYFER	C1812V104KDRACTU|1812Y1K00104KTWS2
	92-05-G00092-X	92-05-031028-9|92-05-031029-Z	ESD-DIODE 3.3V GSOT03-E3-08 SOT-23	1	PC	D57	VISHAY|BOURNS	GSOT03-E3-08|CDSOT23-T03
	92-05-G00093-X	92-05-031030-9|92-05-031031-Z	ESD-DIODE 5V GSOT05-E3-08 SOT-23	1	PC	D54	VISHAY|BOURNS	GSOT05-E3-08|CDSOT23-T05
			SCHOTTKY 100V 1A SMD110PL SOD-123F	1	PC	D41	MCC	SMD110PL-TP
			SCHOTTKY 100V 1A SMD110PL SOD-123F	1	PC	D51	MCC	SMD110PL-TP
			SCHOTTKY 100V 1A SMD110PL SOD-123F	1	PC	D52	MCC	SMD110PL-TP
			SCHOTTKY 100V 1A SMD110PL SOD-123F	1	PC	D53	MCC	SMD110PL-TP
			SCHOTTKY 100V 1A SMD110PL SOD-123F	1	PC	D80	MCC	SMD110PL-TP
			SCHOTTKY 100V 3A S310FA SOD-123F	1	PC	D56	ON SEMI	S310FA
			SCHOTTKY 200V 2A SMD220PL SOD-125F	1	PC	D59	MCC	SMD220PL
			SCHOTTKY-5A 200V VSSC520S-M3/57T SMC	1	PC	D71	Vishay	VSSC520S-M3-57T
	92-05-130055-X	92-05-005078-9|92-05-030204-1	SIGNAL-DIODE 250mA 200V SOD323	1	PC	D10	VISHAY|NXP	BAV21WS-E3-08|BAS321
	92-05-130055-X	92-05-005078-9|92-05-030204-1	SIGNAL-DIODE 250mA 200V SOD323	1	PC	D74	VISHAY|NXP	BAV21WS-E3-08|BAS321
	92-05-130055-X	92-05-005078-9|92-05-030204-1	SIGNAL-DIODE 250mA 200V SOD323	1	PC	D76	VISHAY|NXP	BAV21WS-E3-08|BAS321
	92-05-130055-X	92-05-005078-9|92-05-030204-1	SIGNAL-DIODE 250mA 200V SOD323	1	PC	D81	VISHAY|NXP	BAV21WS-E3-08|BAS321
		92-05-031127-6	ZENER-300MW 12V MM5Z12VST1G SOD-323	1	PC	D75	ON SEMI	MM5Z12VT1G
		92-05-031127-6	ZENER-300MW 12V MM3Z12VST1G SOD-323	1	PC	D77	ON SEMI	MM3Z12VT1G
		92-05-002582-6|	ZENER-500mW 12V MM5Z5242BT1G/MM5Z5242B-7-F SOD-123	1	PC	D72	ON SEMI|DIODES	MM5Z5242BT1G|MM5Z5242B-7-F
		92-05-002582-6|	ZENER-500mW 12V MM5Z5242BT1G/MM5Z5242B-7-F SOD-123	1	PC	D73	ON SEMI|DIODES	MM5Z5242BT1G|MM5Z5242B-7-F
	92-05-111998-X	92-05-001274-9|92-05-011363-P|92-05-011683-G	TVS-600W SMBJ33CA-E3/P6SMBJ 33C/SM6T39CA	1	PC	D78	VISHAY|PANJIT|ST	SMBJ33CA
	92-05-111998-X	92-05-001274-9|92-05-011363-P|92-05-011683-G	TVS-600W SMBJ33CA-E3/P6SMBJ 33C/SM6T39CA	1	PC	D79	VISHAY|PANJIT|ST	SMBJ33CA
			TVS-600W 418V P6SMB440A SMB	1	PC	D4	LITTELFUSE	P6SMB440A
			TVS-600W 418V P6SMB440A SMB	1	PC	D5	LITTELFUSE	P6SMB440A
			TVS-600W 418V P6SMB440A SMB	1	PC	D6	LITTELFUSE	P6SMB440A
			TVS-600W 418V P6SMB440A SMB	1	PC	D7	LITTELFUSE	P6SMB440A
			TVS-600W 418V P6SMB440A SMB	1	PC	D8	LITTELFUSE	P6SMB440A
			TVS-600W 418V P6SMB440A SMB	1	PC	D9	LITTELFUSE	P6SMB440A
			RECTIFIER-2A 1200V IDM02G120C5 TO-252-2	1	PC	D2	INFINEON	IDM02G120C5XTMA1
			RECTIFIER-2A 1200V IDM02G120C5 TO-252-2	1	PC	D999	INFINEON	IDM02G120C5XTMA1
			RECTIFIER-2A 1200V IDM02G120C5 TO-252-2	1	PC	D1	INFINEON	IDM02G120C5XTMA1
			tbd	1	PC	F3	Schurter	
			IC-NCP5501DT50RKG DPAK	1	PC	IC42	ONSEMI	NCP5501DT50RKG
			IC-LMR54406FDBVR SOT23-6	1	PC	IC41	TI	LMR54406FDBVR
			IC-LMR54406FDBVR SOT23-6	1	PC	IC43	TI	LMR54406FDBVR
		35-05-040001-8	BEAD CORE FBCA-7B-302585-L-T	1	PC	L61	KINGCORE	FBCA-7B-302585-L-T
		35-05-040001-8	BEAD CORE FBCA-7B-302585-L-T	1	PC	L62	KINGCORE	FBCA-7B-302585-L-T
			CHOKE 12uH 1.1A NPI43C120MTRF	1	PC	L41	NIC COMPONENTS CORP|COILMASTER	NPI43C120MTRF|SDR43-120M-LF
			CHOKE 12uH 1.1A NPI43C120MTRF	1	PC	L57	NIC COMPONENTS CORP|COILMASTER	NPI43C120MTRF|SDR43-120M-LF
			CHOKE-4.7uH 1.35A DFE252010F-4R7MP2	1	PC	L12	MURATA|BOURNS|TDK	DFE252010F-4R7MP2|SRP2510A-4R7M|TFM252012ALVA4R7MTAA
			CHOKE-4.7uH 1.35A DFE252010F-4R7MP2	1	PC	L13	MURATA|BOURNS|TDK	DFE252010F-4R7MP2|SRP2510A-4R7M|TFM252012ALVA4R7MTAA
			CHOKE-4.7uH 1.35A DFE252010F-4R7MP2	1	PC	L2	MURATA|BOURNS|TDK	DFE252010F-4R7MP2|SRP2510A-4R7M|TFM252012ALVA4R7MTAA
		35-05-000039-0	FERRITE BEAD 2.0x1.25x0.85	1	PC	L8	MURATA	BLM21PG221SN1
		35-05-000039-0	FERRITE BEAD 2.0x1.25x0.85	1	PC	L9	MURATA	BLM21PG221SN1
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L42	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L43	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L44	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L45	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L51	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L52	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L55	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L56	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L58	MURATA	BLM18PG471SN1D
		35-05-040011-0	FERRITE BEAD-SMD 0603 1A BLM18PG471SN1	1	PC	L59	MURATA	BLM18PG471SN1D
			CHIP-RES 1R 0603	1	PC	R46	KOA|SEI|HK RES|TORS	
			CHIP-RES 1R 0603	1	PC	R47	KOA|SEI|HK RES|TORS	
			CHIP-RES 1R 0603	1	PC	R48	KOA|SEI|HK RES|TORS	
			CHIP-RES 1R 0603	1	PC	R51	KOA|SEI|HK RES|TORS	
			CHIP-RES 1R 0603	1	PC	R62	KOA|SEI|HK RES|TORS	
	71-05-240324-1	71-05-240324-2|71-05-240324-A|71-05-240324-6	CHIP-RES 6K8 0.1W 1% 0603 100ppm	1	PC	R74	KOA|SEI|HK RES|TORS	RK73H1JTTD6K80F|RMC 1/16 6K8 1% R|RCT03 6K8 1% LF
	71-05-240351-1	71-05-240351-2|71-05-240351-A|71-05-240351-6	CHIP-RES 12K 0.1W 1% 0603 100ppm	1	PC	R75	KOA|SEI|HK RES|TORS	RK73H1JTTD12K0F|RMC 1/16 12K 1% R|RCT03 12K 1% LF
	71-05-240351-1	71-05-240351-2|71-05-240351-A|71-05-240351-6	CHIP-RES 12K 0.1W 1% 0603 100ppm	1	PC	R76	KOA|SEI|HK RES|TORS	RK73H1JTTD12K0F|RMC 1/16 12K 1% R|RCT03 12K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R73	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R77	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R95	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R96	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R97	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R41	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240361-1	71-05-240361-2|71-05-240361-A|71-05-240361-6	CHIP-RES 15K 0.1W 1% 0603 100ppm	1	PC	R58	KOA|SEI|HK RES|TORS	RK73H1JTTD15K0F|RMC 1/16 15K 1% R|RCT03 15K 1% LF
	71-05-240370-1	71-05-240370-2|71-05-240370-A|71-05-240370-6	CHIP-RES 18K 0.1W 1% 0603 100ppm	1	PC	R79	KOA|SEI|HK RES|TORS	RK73H1JTTD18K0F|RMC 1/16 18K 1% R|RCT03 18K 1% LF
	71-05-240409-1	71-05-240409-2|71-05-240409-A|71-05-240409-6	CHIP-RES 39K 0.1W 1% 0603 100ppm	1	PC	R59	KOA|SEI|HK RES|TORS	RK73H1JTTD39K0F|RMC 1/16 39K 1% R|RCT03 39K 1% LF
	71-05-240409-1	71-05-240409-2|71-05-240409-A|71-05-240409-6	CHIP-RES 39K 0.1W 1% 0603 100ppm	1	PC	R43	KOA|SEI|HK RES|TORS	RK73H1JTTD39K0F|RMC 1/16 39K 1% R|RCT03 39K 1% LF
	71-05-240438-1	71-05-240438-2|71-05-240438-A|71-05-240438-6	CHIP-RES 68K 0.1W 1% 0603 100ppm	1	PC	R42	KOA|SEI|HK RES|TORS	RK73H1JTTD68K0F|RMC 1/16 68K 1% R|RCT03 68K 1% LF
	71-05-240438-1	71-05-240438-2|71-05-240438-A|71-05-240438-6	CHIP-RES 68K 0.1W 1% 0603 100ppm	1	PC	R57	KOA|SEI|HK RES|TORS	RK73H1JTTD68K0F|RMC 1/16 68K 1% R|RCT03 68K 1% LF
	71-05-240438-1	71-05-240438-2|71-05-240438-A|71-05-240438-6	CHIP-RES 68K 0.1W 1% 0603 100ppm	1	PC	R78	KOA|SEI|HK RES|TORS	RK73H1JTTD68K0F|RMC 1/16 68K 1% R|RCT03 68K 1% LF
	71-05-543151-1	71-05-543151-2|71-05-543151-A|71-05-543151-6	CHIP-RES 22R 0.25W 1% 1206 100ppm TBD !!!	1	PC	R53	SEI|KOA|HK RES|TORS	RMC 1/8 22R 1% R|RK73H2BTTD22RF|RCT06 22R FLF
	71-05-543151-1	71-05-543151-2|71-05-543151-A|71-05-543151-6	CHIP-RES 22R 0.25W 1% 1206 100ppm TBD !!!	1	PC	R54	SEI|KOA|HK RES|TORS	RMC 1/8 22R 1% R|RK73H2BTTD22RF|RCT06 22R FLF
	71-05-541151-1	71-05-541151-2|71-05-541151-A|71-05-541151-6	CHIP-RES 220R 0.25W 1% 1206 100ppm	1	PC	R10	SEI|KOA|HK RES|TORS	RMC 1/8 220R 1% R|RK73H2BTTD2200F|RCT06 220R FLF
	71-05-541265-1	71-05-541265-2|71-05-541265-A|71-05-541265-6	CHIP-RES 2K2 0.25W 1% 1206 100ppm	1	PC	R52	SEI|KOA|HK RES|TORS	RMC 1/8 2K2 1% R|RK73H2BTTD2201F|RCT06 2K2 FLF
	71-05-541305-1	71-05-541305-2|71-05-541305-A|71-05-541305-6	CHIP-RES 4K7 0.25W 1% 1206 100ppm	1	PC	R49	SEI|KOA|HK RES|TORS	RMC 1/8 4K7 1% R|RK73H2BTTD4701F|RCT06 4K7 FLF
	71-05-541390-1	71-05-541390-2|71-05-541390-A|	CHIP-RES 27K 0.25W 1% 1206 100ppm	1	PC	R17	SEI|KOA|HK RES|TORS	RMC 1/8 27K 1% R|RK73H2BTTD2702F|RCT06 27K FLF
	71-05-541390-1	71-05-541390-2|71-05-541390-A|	CHIP-RES 27K 0.25W 1% 1206 100ppm	1	PC	R18	SEI|KOA|HK RES|TORS	RMC 1/8 27K 1% R|RK73H2BTTD2702F|RCT06 27K FLF
	71-05-541390-1	71-05-541390-2|71-05-541390-A|	CHIP-RES 27K 0.25W 1% 1206 100ppm	1	PC	R19	SEI|KOA|HK RES|TORS	RMC 1/8 27K 1% R|RK73H2BTTD2702F|RCT06 27K FLF
	71-05-541390-1	71-05-541390-2|71-05-541390-A|	CHIP-RES 27K 0.25W 1% 1206 100ppm	1	PC	R31	SEI|KOA|HK RES|TORS	RMC 1/8 27K 1% R|RK73H2BTTD2702F|RCT06 27K FLF
	71-05-541390-1	71-05-541390-2|71-05-541390-A|	CHIP-RES 27K 0.25W 1% 1206 100ppm	1	PC	R32	SEI|KOA|HK RES|TORS	RMC 1/8 27K 1% R|RK73H2BTTD2702F|RCT06 27K FLF

CURRICULUM VITAE

Personal Data

Name:	Kevin Gunawan
Place of birth:	Jakarta
Birth date:	09.04.2001
Adress:	Jalan Rawa Selatan 1 No. 33 Jakarta 10550, Indonesia
Nationality:	Indonesian
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Study

Since 2019	Mechatronics engineering 8th semester at Swiss German University

Internship

March to August 2022	Intern at Aeconversion GmbH & Co. KG, an industrial electronics company with a focus on the manufacture of inverters and power supplies. Activities: Participate in quality control, product testing, and logistics for photovoltaic inverters and power supplies.
June to July 2021	Intern at PT. Trimukti Wirapratama, an Indonesian shoe manufacturer, in the design, production and quality control departments. Activities: Participate in the development of shoe soles, the manufacture of shoe soles and the quality control of shoe soles.
Juli bis August 2018	Intern at PT. Gramaselindo Utama, an Indonesian fiber optic cable manufacturer, in production and quality control. Activities: Participate in fiber optic cable introduction, fiber optic cable manufacturing and quality control.

School education

2016 to 2019	Strada Vocational Highschool
2012 to 2016	Van Lith Middle Highschool
2006 to 2012	Saint John Elementary School

Course

2016-2018	German language course at Goethe-Institut Indonesia

Linguistic proficiency

Indonesian – Mother tounge
English – Very good in word and scripture
German – Level B1.3

Computer knowledge

Microsoft Windows	FluidSim	Scilab
Microsoft Office (Word, Excel, PowerPoint)	Arduino	Codesys
Fusion 360	Proteus 8	Qt
Minitab		

Organizational experience

2021-2022	Head of student organization with military discipline at the university
2019-2021	Secretary of the student organization with military discipline at the university
2021	Deputy Head of Events Department for “Mechatronics Day 2021”
2020	Member of the events department for "Mechatronics Day 2020"
2019-2020	Active member of the organizing club at the university
2019	Member of the logistics department for “Mechatronics Day 2019"
2017-2018	Chairman of the Student Council in the vocational school

Hobbys and Interests

Swimming	Cooking	Electrical engineering
Riding motorbike	Travel	Automation
Badminton	Tracking	Quality control

Jakarta, 10. June 2023

Kevin Gunawan