

endrich news

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Our Product of the Month HAL USB Programming Tool v1.0



**New cost-efficient USB kit for easy programming
of the Micronas hall effect sensor families**

HAL 18xy

HAL 24xy

HAL 36xy

HAL 37xy

HAL 38xy

as well as future products



Sensor Components – Support for Customers

BLUETOOTH® WIRELESS DEVICES FOR HIGH DATA RATES UP TO 3 MBIT



Since 1. 4. 2014 Endrich and Panasonic cooperate in the field of wireless devices. Endrich has become an official distributor of wireless devices from Panasonic. Panasonic is a well known specialist in the field of wireless modules and offers a series of Bluetooth® devices with different profile and stack options to meet nearly any application.

The announced **Classic-Bluetooth®-technology** is best suited to high data rate applications (up to 3 Mbits), where the network size is under eight nodes.

FEATURES

- » Larger networks formed with scatternets
- » Robust connections, even in noisy environments, using 80 channels (each 1 MHz wide), adaptive frequency hopping, and multiple modulation schemes
- » Range adjusted using hardware and software, from under a meter to one hundred meter
- » Perfect to replace a serial cable with the SPP (Serial Port Profile)

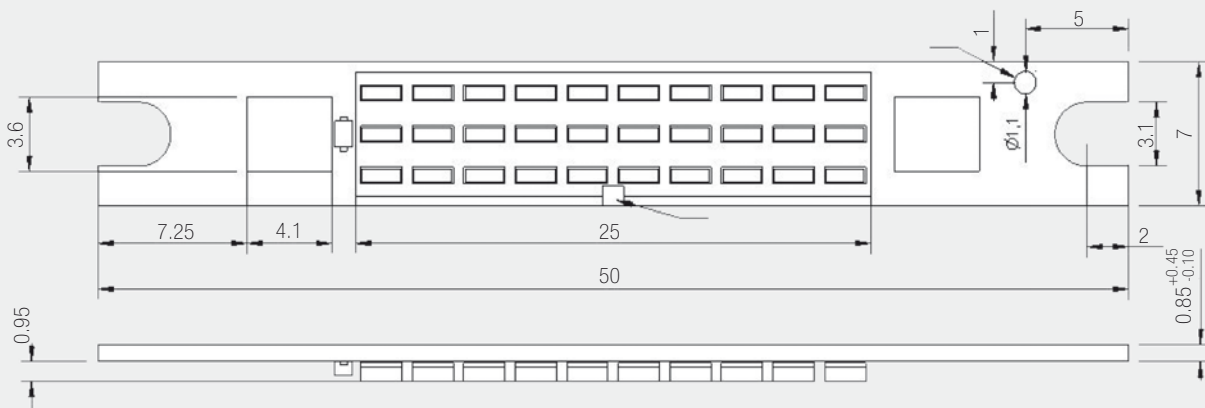
ITEM	PAN13x0 SERIES	PAN1322 SERIES	PAN1x55 SERIES	PAN13x5B SERIES
Picture				
Status	Mass Production	Mass Production	Mass Production	Mass Production
Part Number	ENW898 14x2MF	ENW898 41A3KF	ENW89815x×KF	ENW89829x3KF
RF Category	Classic Bluetooth® Bluetooth® v2.1 + EDR class 2	Classic Bluetooth® Bluetooth® v2.1 + EDR class 2	Classic Bluetooth® Bluetooth® v3.0 + EDR class 2	Classic Bluetooth® Bluetooth® v2.1 + EDR class 1.5
Software/Profile	HCI	SPP	SPP/HDP+SPP/HDI/...	HCI
Used ICs	PMB8763	PMB8754	BC6+STM32F103	CC2560B
Dimensions [mm]	11.6x8.7x1.8 15.6x8.7x2.8	15.6x8.7x1.8	18.8x13.5x2.7 22.8x13.5x2.7	9.0x6.5x1.8 9.0x9.5x1.8
Rx Sensitivity [dBm]	-86 @ BER 10 ⁻³	-86 @ BER 10 ⁻³	-86 @ BER 10 ⁻³	-93 @ BER 10 ⁻³
Tx Power, max. [dBm]	+4	+4	+4	+10.5
Power supply [V]	2.9 bis 4.1	2.9 bis 4.1	2.7 bis 3.6	1.8 bis 4.8
Current consumption	Tx, EDR: 40 mA Sleep mode: 80 µA	Tx, EDR: 40 mA Sleep mode: 80 µA	ACL, DH1: 47 mA Sleep mode: <100 µA	Tx, EDR: 40 mA Sleep mode: 135 µA
Interfaces	GPIO, PCM, UART, JTAG	GPIO, UART, JTAG	GPIO, UART, I ² T, SPI, ADC	GPIO, PCM, UART

LOW-COST SINGLE-CHIP LED MODULES 3 W AND 6 W – E-104-MC3/6



ENDRICH Bauelemente offers low-cost single-chip modules with 3 W or 6 W. These modules are manufactured in own production line alternative at Citizen modules CL-L104 (3 W/6 W). They are assembled with Citizen SMD LEDs CLL600/620 due to that long life and high light quality are guaranteed. Applications are mainly interior lighting.

DIMENSIONS (mm)



FEATURES

- » White high power LED for general lighting
- » Single-chip module based on SMD LEDs CLL600/620
- » Watt classes: 3 W and 6 W
- » Available color temperatures: 2700 K/3000 K/3500 K/4000 K/5000 K
- » Typical values at 3000 K type:
3 W (21 LED), 350 mA, 333 lm, 104 lm/W
6 W (30 LED), 700 mA, 650 lm, 97 lm/W
- » Low-cost version alternative at Citizen CL-L104 type
- » CRI: Ra=85 typical

ABSOLUTE MAXIMUM RATINGS

PARAMETER	3W Type	6W Type
Power dissipation P_D	7.14 W	10.2 W
Forward current I_F	700 mA	1000 mA
Forward pulse current I_{FP}	840 mA	1200 mA
Reverse voltage V_R	5 V	5 V
Operating temperature T_{OP}	-30~+85 °C	-30~+85 °C
Storage temperature T_{STG}	-40~+100 °C	-40~+100 °C
Junction temperature T_j	120 °C	120 °C

PARAMETER	E-104MC3 (3W TYPE)			E-104MC6 (6W TYPE)				
	Min.	Typ.	Max.	Min.	Typ.	Max.		
Forward voltage V_F [V]	$I_F=350$ mA (7×50 mA)			$I_F=700$ mA (10×70 mA)				
Reverse current I_R [μA]	$V_R=5$ V			$V_R=5$ V				
Thermal resistance R_{j-s} [K/W]	junction-solder			junction-solder				
Luminous flux ϕ_v [lm]	2700K	240	320	401	2700K	475	635	794
	3000K	250	333	416	3000K	494	659	824
	3500K	251	334	419	3500K	497	662	829
	4000K	274	344	429	4000K	543	680	851
	5000K	266	356	444	5000K	527	705	878
Color Rendering Index Ra	$I_F=80$ mA (single LED CLL600)			$I_F=80$ mA (single LED CLL600)				
	80	85		80	85			

MP100L/MP103 – EasyPower™, OFFLINE INDUCTOR-LESS REGULATORS



MP100L Eval Board

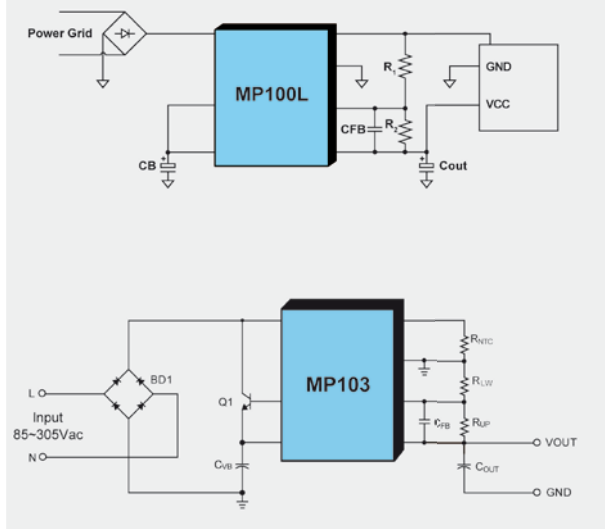
MP103 Eval Board



MAIN FEATURES

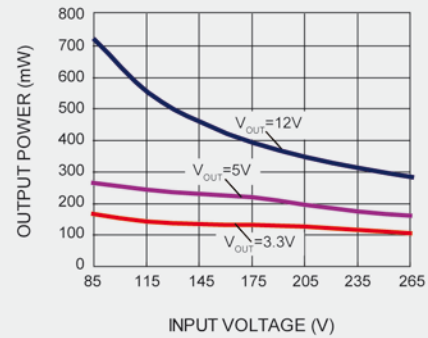
- » Universal AC Input (85VAC-to-305VAC)
- » No Inductor
- » Less than 100mW Standby Power
- » Good EMI
- » Low BOM Cost
- » Adjustable Output Voltage from 1.5V to 15V
- » Thermal Shutdown Protection
- » Short-Circuit Protection
- » Power-Good Signal

TYPICAL APPLICATION



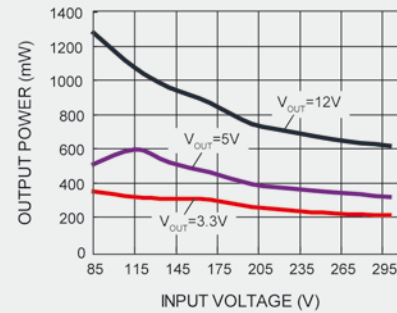
OUTPUT POWER VS. INPUT VOLTAGE

MP100L



MP103

Output Power vs. Input Voltage



APPLICATIONS

- » Wall switches and dimmers
- » Standby power for general offline applications
- » AC/DC power supply for wireless systems (ZigBee, Z-Wave, etc.)
- » Small appliances

PART NUMBER	V_{AC}	P_{OUT}	V_{REF}	V_{OUT}	V_{BR}	$R_{DS(on)}$	PACKAGE	NOTES
MP100L	85V ... 305V	max. 400 mW	1.235V	1.5V ... 15V	500V	9.5 Ω	SOIC8E	Offline inductor-less regulator for low power applications
MP103	85V ... 305V	max. 800 mW	1.235V	1.5V ... 15V	700V	-	SOIC8E	Higher power, offline inductor-less regulator with external BJT

MP15x/MP17x – EasyPower™, REGULATORS FOR LOW POWER APPLICATIONS

APPLICATIONS

- » Small appliance
- » White goods
- » Consumer electronics
- » Industrial controls
- » Standby power



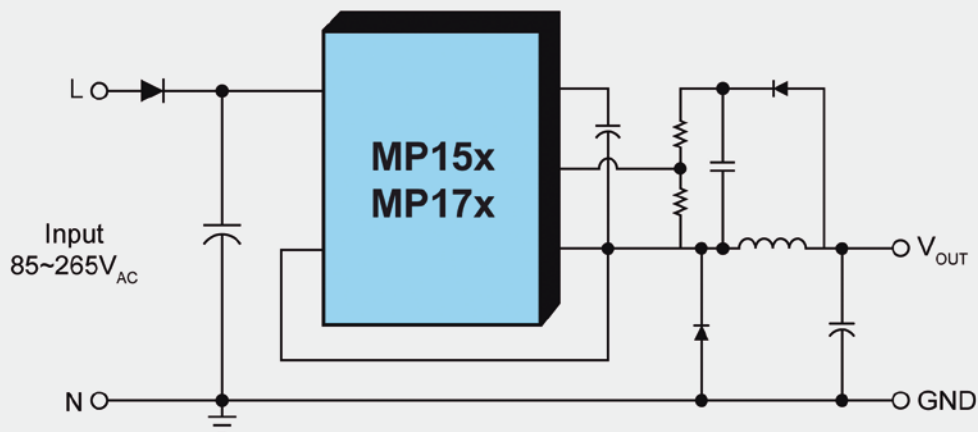
MP150 evaluation board

MAIN FEATURES

- » Primary-side constant voltage (CV) control, supporting Buck, buck-boost, boost and flyback topologies
- » Integrated high-voltage MOSFET
- » <150 mW no-load power consumption
- » Frequency foldback
- » Maximum frequency limitation
- » Peak current control
- » High-voltage start-up current source

	PART NUMBER	V_{AC}	TYPE	SWITCHING FREQUENCY	I_{SW} LIMIT	I_{OUT} (CCM), MAX.	I_{OUT} (DCM), MAX.	NO LOAD P _{OUT} (MAX.)	V_{BR}	R _{ds(on)}	I_{SCP} TYP.	PACKAGE	NOTES
MP150	85 V ... 265 V	Regulator	56 kHz	290 mA	200 mA	120 mA	150 mW	500 V	30 Ω	450 mA	SOIC8 TSOT23-5	Offline primary-side 2 W regulator	
MP157	85 V ... 265 V	Regulator	64 kHz	640 mA	360 mA	225 mA	100 mW	500 V	10 Ω	900 mA	SOIC8 TSOT23-5	Offline primary-side 6 W regulator	
MP156	85 V ... 265 V	Regulator	56 kHz	290 mA	200 mA	130 mA	30 mW	500 V	20 Ω	450 mA	SOIC8 TSOT23-5	Offline primary-side 3 W regulator	
MP155	85 V ... 265 V	Regulator	56 kHz	290 mA	200 mA	130 mA	100 mW	500 V	20 Ω	450 mA	SOIC8 TSOT23-5	Offline primary-side 3 W regulator	
MP174	85 V ... 265 V	Regulator	56 kHz	660 mA	400 mA	250 mA	100 mW	700 V	15 Ω	800 mA	SOIC8 TSOT23-5	Offline primary-side 4.5 W regulator	

TYPICAL APPLICATION



SM30KPAN SERIES – 30,000 W PEAK PULSE POWER



Unidirectional



Bidirectional



FEATURES

- » Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 μ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- » 30,000 Watts Peak Pulse Power per Line ($t_p = 10/1000 \mu$ s)
- » Unidirectional and bidirectional configurations
- » Easy mounting to printed circuit board
- » Available in multiple voltages ranging from 30V to 75V
- » Clamping time (0V to V(BR)Min) < 100 ps, theoretical for unidirectional and 5 ns for bidirectional
- » RoHS complaint
- » Lead-free silver plating
- » Solder reflow temperature: 260-270°C
- » Flammability rating UL 94V-0

MAXIMUM RATINGS

PARAMETER		VALUE
Operating temperature [°C]	T_{OPR}	-55 ... +150
Storage temperature[°C]	T_{STG}	-55 ... +150
Max. pulse power [W] ($t_p=10/1000\mu$ s)	P_{PP}	30.000
Forward Surge Rating [A] ($t_p=10/1000\mu$ s)	I_F	200
Steady State Power Dissipation [W]	P_P	1.0

ProTek Devices has introduced its SM30KPAN

series of high-powered surface mount transient voltage suppressor (TVS) components to provide circuit protection from overvoltage events in applications that include relay drives and motor (start/stop) back electromagnetic fields (EMF). The components also deliver module lightning protection and secondary lightning protection for AC/DC power lines.

This series consists of various components, from SM30KPA30AN to SM30KPA75AN, that make up the family. They have rated stand-off voltages from 30.0 to 75.0 volts to suit a wide variety of design requirements. The devices provide 30,000 watts of peak pulse power dissipation for a 10/1000 micro amps waveform. They are also compatible with IEC 61000-4-5 (surge): 48A, 8/20 μ s.

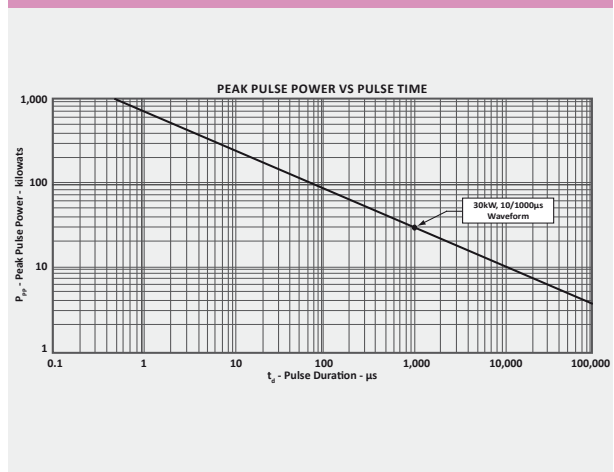
The components allow unidirectional and bidirectional configurations as well as easy mounting to a printed circuit board. The clamping time is < 100ps theoretical for unidirectional and 5ns for bidirectional. The series is also RoHS compliant.

The SM30KPAN series complements ProTek Devices' SM15KPAN series released last month. That series provides rated stand-off voltages from 17.0 to 220 volts and 15,000 watts of peak pulse power dissipation.

APPLICATIONS

- » Relay Drives
- » Motor (Start/Stop) Back EMF Protection
- » Module Lightning Protection
- » Secondary Lightning Protection for AC/DC

PEAK PULSE POWER VS. PULSE DURATION



SM30KPAN SERIES – 30,000 W PEAK PULSE POWER

ELECTRICAL CHARACTERISTICS @ 25°C

Unidirectional Configuration

PART NUMBER	MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} [V]	MIN. BREAKDOWN VOLTAGE V_{BR} [V]		MAX. LEAKAGE CURRENT I_b [μ A] @ V_{WM}	TEMP. COEFFICIENT OF V_{BR} qV_{BR} [mV/°C]	MAX. CLAMPING VOLT. [V] @ 10/1000 μ s, I_{FP}
			min.	@ I_T			
PAM2SM30KPA30AN	30A	30.0	33.3	50	5000	34 mV/°C	55.2 V @ 543.0 A
PAM2SM30KPA36AN	36A	36.0	40.0	50	2000	41 mV/°C	61.8 V @ 485.0 A
PAM2SM30KPA43AN	43A	43.0	47.8	50	1000	50 mV/°C	73.0 V @ 410.0 A
PAM2SM30KPA48AN	48A	48.0	53.3	5	250	56 mV/°C	77.4 V @ 388.0 A
PAM2SM30KPA58AN	58A	58.0	64.4	5	20	68 mV/°C	92.4 V @ 325.0 A
PAM2SM30KPA64AN	64A	64.0	71.1	5	10	76 mV/°C	104.0 V @ 294.0 A
PAM2SM30KPA75AN	75A	75.0	83.3	5	10	89 mV/°C	119.4 V @ 251.0 A

Devices shown are preferred voltages. Consult us for additional voltages.

Bidirectional Configuration

PART NUMBER	MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} [V]	MIN. BREAKDOWN VOLTAGE V_{BR} [V]		MAX. LEAKAGE CURRENT I_b [μ A] @ V_{WM}	TEMP. COEFFICIENT OF V_{BR} qV_{BR} [mV/°C]	MAX. CLAMPING VOLT. [V] @ 10/1000 μ s, I_{FP}
			min.	@ I_T			
PAM2SM30KPA30CAN	30C	30.0	33.3	50	5000	34 mV/°C	55.2 V @ 543.0 A
PAM2SM30KPA33CAN	33C	33.0	36.7	50	5000	41 mV/°C	58.6 V @ 512.0 A
PAM2SM30KPA48CAN	48C	48.0	53.3	5	250	56 mV/°C	77.4 V @ 388.0 A
PAM2SM30KPA58CAN	58C	58.0	64.4	5	20	68 mV/°C	92.4 V @ 325.0 A

Devices shown are preferred voltages. Consult us for additional voltages.

USB-PROGRAMMING-KIT FOR MICRONAS' HALL-EFFECT-SENSOR-FAMILIES



The HAL USB programming tool v1.0 is a board for programming the Micronas Hall-effect sensor families with analog and digital output formats. The board is equipped with a Micronas microcontroller HVC2480B. It provides application software supporting a command interface for the communication with a PC. This allows the implementation of specific PC software for engineering purposes only.

The HAL USB programming tool supports following Micronas sensors:

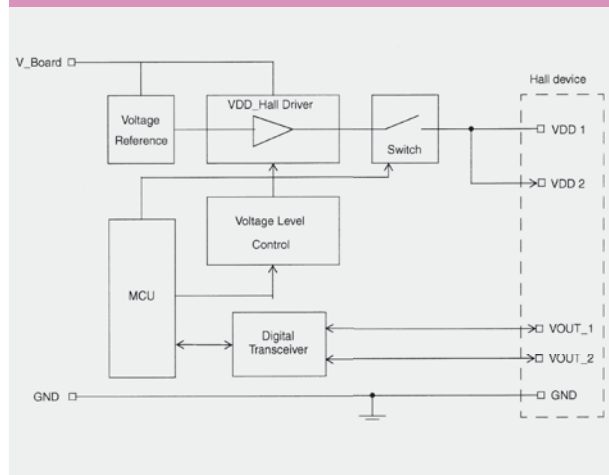
- HAL1820 - linear sensor with analog output
- HAL24xy - linear sensor with analog/PWM output
- HAL3625 - Direct angle sensor with analog output
- HAL3675 - Direct angle sensor with PWM output
- HAL 37xy - 2D position/direct angle sensor with analog/PWM/SENT output
- HAL 385x - 2D position sensor with analog output
- HAL 387x - 2D position sensor with PWM output

Micronas GmbH provides easy-to-use PC software (LabView) for each supported sensor (kit connected to PC via USB).

Suitable for simple programming of Micronas' sensors in the laboratories of the customers.

The programming software can be downloaded free of charge from the Micronas homepage <http://service.micronas.com>. The new programming tool is compatible to the previous V1.5 version.

BLOCK DIAGRAM



new

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