

endrich news

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Our Product of the Month TFT-Displays for Highest Standards

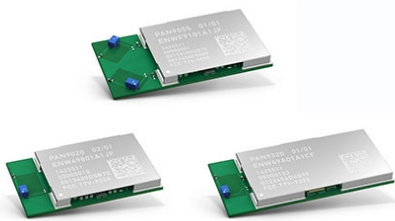


- Industrial sunlight readable display sizes 3.5" ... 12.1"
- Projective capacitive touch panels (PCAP)
- Operating temperature -30°C ... +85°C
- Brightness up to 1,500 cd/m²
- Min. backlight life time 50,000 hours
- 5 years guaranteed availability on mechanics and interface
- Viewing angle up to 160° by O-film
- Improved sunlight reading precision by LR-polarizer

SGD[®]
Display the World

INNOVATIVE DISPLAYS AND MODULES

WLAN/WI-FI-WIRELESS MODULES – FAST INTEGRATION, MAX. PERFORMANCE



Panasonic expand their product line with WLAN / Wi-Fi modules. These operate in the 2.4 GHz ISM band and enable rapid wireless implementation in a variety of applications. With an excellent 802.11 wireless radio and baseband processor in a system-on-chip (SoC) design achieves maximum WLAN performance.

With a host of standard features, these modules are the ideal solution for all your wireless needs.

Panasonic Wi-Fi wireless modules provide rapid deployment of wireless technologies in your designs. The mature development environments with the appropriate support by our specialists also enable the hitherto rather inexperienced developer a quick start into the world of wireless.

With a flexible, system-on-chip (SoC) solution, these modules enable low-power operation and the increase speed-to-market. Panasonic Wi-Fi radio modules are characterized by the perfect blend of reliability and performance.

The modules are available in the versions Wi-Fi only or a combination of Wi-Fi and Bluetooth® Smart Ready.

Discover today how Panasonic can revolutionize the wireless performance of your electronic designs!

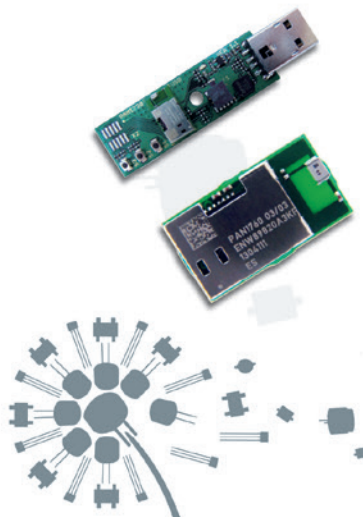
Endrich Vertriebs GmbH is the official distributor of wireless devices from Panasonic. Panasonic is a well-known specialist in the field of wireless modules and offers a range of Bluetooth® and wireless devices with different profile and stack options for almost any application such as mobile measuring equipment, PC, notebook, car infotainment, wireless meter reading, AMR, data collection, security technology, medical technology, access control, home and building automation.

Panasonic presents the family PAN93X, WiFi modules with integrated networking stack



New WiFi module Panasonic: PAN93X0 family

- Integrated WiFi stack
- Accesspoint, TCP / IP
- AdHoc on board
- 2 MB Flash on board, 1MB for customer application
- Temperature range: -30°C to +70°C
- Development environment and software on request, development kit
- Samples ex Endrich stock



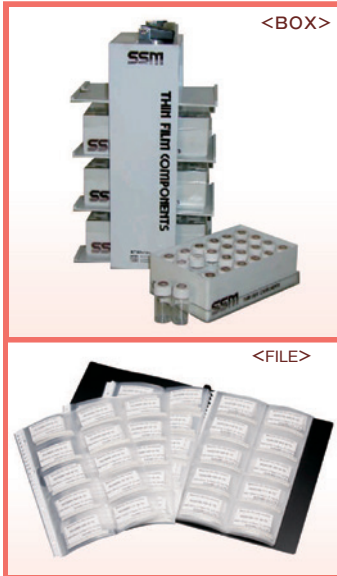
PAN 1760 Bluetooth 4.1 smart modules Bluetooth 4.1 smart ready modules

- Already implemented GATT layer
- Sources available for GAP layer - available for free
- BT certified
- Industrial temperature range: -40°C to +85°C

Your benefits

- Fully certified acc. to CE+FCC
- Short development time
- Fastest time to market

SUSUMU-THIN FILM RESISTORS-SAMPLE KITS FOR DEVELOPMENT



Kits are available for metal thin film chip resistors and low resistance chip resistors.

They are perfect for development, prototype making, testing and experiments.

PART NUMBERING SYSTEM

RG1005PD - KIT - BOX/FILE

Packaging quantity:BOX(BOXType)
FILE : (Filing book type)

Sample kits

Product series name

Surface mount thin film resistors / Metal thin film chip resistors

TYPE	Rated power(W)						Resistance tolerance(%)			Container type	
	1/4	1/6	1/8	1/10	1/16	1/32	±0.05	±0.1	±0.5	BOX	FILE
RR0816PD-KIT					●				●	●	●
RR1220PD-KIT				●					●	●	●
RG1005PD-KIT			●		●	●			●	●	●
RG1608PD-KIT		●		●	●				●	●	●
RG2012PD-KIT	●		●	●					●	●	●
RG1005PB-KIT			●		●	●		●		●	●
RG1608PB-KIT		●		●	●			●		●	●
RG2012PB-KIT	●		●	●				●		●	●
RG1005NW-KIT			●		●	●	●			●	●
RG1608NW-KIT		●		●	●		●			●	●
RG2012NW-KIT	●		●	●			●			●	●

Current sensing surface mount resistors / Low resistance chip resistors

TYPE	Rated power(W)										Resistance tolerance(%)		Container type	
	6	5	4	3	2	1.5	1	3/4	1/2	1/3	±1	±2	BOX	FILE
KRL1220-KIT									●		●	●		●
KRL1632-KIT								●			●	●		●
KRL3264-KIT					●						●	●		●
KRL2012-KIT							●				●	●		●
KRL3216-KIT						●					●	●		●
KRL6432-KIT				●							●	●		●
KRL7638-KIT			●								●	●		●
KRL9045-KIT		●									●	●		●
KRL11050-KIT	●										●	●		●
RL1220-KIT										●	●			●
RL3720W-KIT							●				●			●

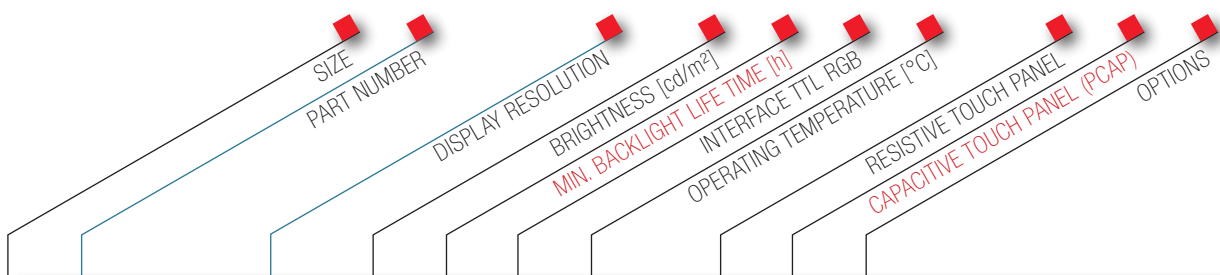
TFT-DISPLAYS – SUNLIGHT READABLE



Solomon Goldentek Display (SGD) started up more than 20 years ago as a subsidiary of the Taiwan semiconductor group Solomon Technology Corporation. SGD specialises in extremely high-quality TFT modules in the range 3.5 to 12.1 inches which are particularly suitable for industrial applications. A further strength of SGD are sunlight readable TFT modules in the range 3.5 to 12.1 inches. The displays have a high bright backlight up to 1,500 cd/m². Furthermore, an additional Low-Reflection Polarizer can be assembled, which reduces the reflection rate significantly.

Overview of the advantages of Solomon Goldentek Display (SGD) TFT modules:

- » Modules available in high bright and super high bright versions
- » Minimum backlight lifetime of up to 50,000 hours
- » Extended operating temperature range -30°C ... +85°C
- » **5-year operational guarantee on workmanship and interface**

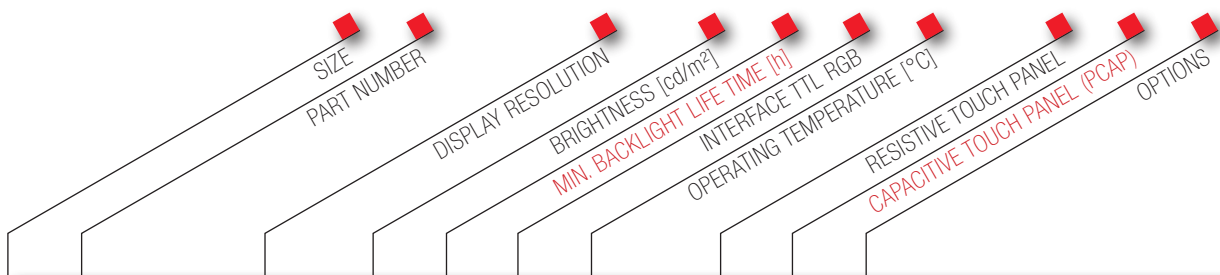


TFT-DISPLAYS – SUNLIGHT READABLE 3.5" - 4.3"

3.5"	GVTQ35SNAD1E0	320 x 240	800	50 k	•	-20 ... +70			CPU Interface, O-Film (All-View)
3.5"	GVTQ35SPAD2R0	320 x 240	640	50 k	•	-20 ... +70	•		CPU Interface, O-Film (All-View)
3.5"	GVTQ35SCAD1C0	320 x 240	700	50 k	•	-20 ... +70		•	CPU Interface, O-Film (All-View)
3.5"	GVTQ35TNAD1E0	320 x 240	800	50 k	•	-30 ... +85			
3.5"	GVTQ35TPAD2R0	320 x 240	640	50 k	•	-30 ... +85	•		
3.5"	GVTQ35T	320 x 240	700	50 k	•	-30 ... +85		•	
4.3"	GKCY43SNAH2E0	480 x 272	1.000	50 k	•	-20 ... +70			CPU Interface, O-Film (All-View)
4.3"	GKCY43SPA1R0	480 x 272	800	50 k	•	-20 ... +70	•		CPU Interface, O-Film (All-View)
4.3"	GKCY43SCAH2C0	480 x 272	880	50 k	•	-20 ... +70		•	CPU Interface, O-Film (All-View)
4.3"	GVCY43TNAH2E0	480 x 272	1.000	50 k	•	-30 ... +85			
4.3"	GVCY43TPA1R0	480 x 272	800	50 k	•	-30 ... +85	•		
4.3"	GVCY43T	480 x 272	880	50 k	•	-30 ... +85		•	

Reserve technical changes!

TFT-DISPLAYS – SUNLIGHT READABLE



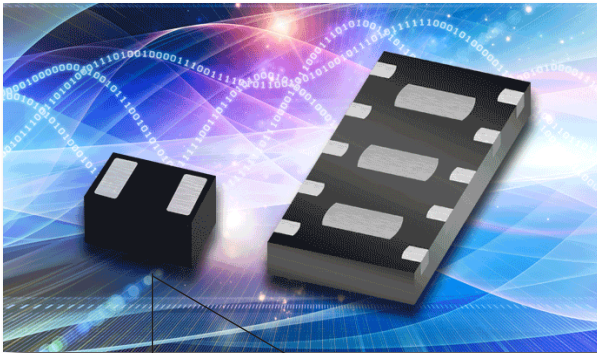
TFT-DISPLAYS – SUNLIGHT READABLE 5.0" - 12.1"

SIZE	PART NUMBER	DISPLAY RESOLUTION	BRIGHTNESS [cd/m ²]	MIN. BACKLIGHT LIFE TIME [h]	INTERFACE TTL RGB	OPERATING TEMPERATURE [°C]	RESISTIVE TOUCH PANEL	CAPACITIVE TOUCH PANEL (PCAP)	OPTIONS
5.0"	GVTW50SNAL3E0	800 x 480	700	50 k	•	-20 ... +70			LVDS Interface, O-Film (All-View)
5.0"	GVTW50SPBC3R0	800 x 480	600	50 k	•	-20 ... +70	•		LVDS Interface, O-Film (All-View)
5.0"	GVTW50SCAL3C0	800 x 480	600	50 k	•	-20 ... +70		•	LVDS Interface, O-Film (All-View)
5.0"	GVTW50T	800 x 480	700	50 k	•	-30 ... +85			LVDS Interface
5.0"	GVTW50T	800 x 480	600	50 k	•	-30 ... +85	•		LVDS Interface
5.0"	GVTW50T	800 x 480	600	50 k	•	-30 ... +85		•	LVDS Interface
5.7"	GVTV57SNAF1E0	640 x 480	900	30 k*	•	-20 ... +70			LVDS Interface, O-Film (All-View)
5.7"	GVTV57SPAFA2R0	640 x 480	700	30 k*	•	-20 ... +70	•		LVDS Interface, O-Film (All-View)
5.7"	GVTV57SCAF1C0	640 x 480	800	30 k*	•	-20 ... +70		•	LVDS Interface, O-Film (All-View)
5.7"	GVTV57TNAF1E0	640 x 480	900	50 k	•	-30 ... +80			LVDS Interface
5.7"	GVTV57TPAF2R0	640 x 480	700	50 k	•	-30 ... +80	•		LVDS Interface
5.7"	GVTV57T	640 x 480	800	50 k	•	-30 ... +80		•	LVDS Interface
7.0"	GVTW70SNAG1E0	800 x 480	1.000	40 k	•	-20 ... +70			LVDS Interface, O-Film (All-View)
7.0"	GVTW70SPAHA1R0	800 x 480	800	40 k	•	-20 ... +70	•		LVDS Interface, O-Film (All-View)
7.0"	GVTW70SCAG1C0	800 x 480	880	40 k	•	-20 ... +70		•	LVDS Interface, O-Film (All-View)
7.0"	GVTW70TNAF1E0	800 x 480	1.000	40 k	•	-30 ... +85			LVDS Interface
7.0"	GVTW70TPAH1R0	800 x 480	800	40 k	•	-30 ... +85	•		LVDS Interface
7.0"	GVTW70T	800 x 480	880	40 k	•	-30 ... +85		•	LVDS Interface
8.0"	GKNS80SNAJ1E0	800 x 600	1.300	50 k	•	-20 ... +70			LVDS Interface, O-Film (All-View)
8.0"	GVNS80SPCG1R0	800 x 600	1.000	50 k	•	-20 ... +70	•		LVDS Interface, O-Film (All-View)
8.0"	GVNS80S	800 x 600	1.100	50 k	•	-20 ... +70		•	LVDS Interface, O-Film (All-View)
10.4"	GVTSA4TNBL4E0	800 x 600	1.500	50 k	LVDS	-20 ... +70			O-Film (All-View)
10.4"	GVTSA4TPBL5R0	800 x 600	1.200	50 k	LVDS	-20 ... +70	•		O-Film (All-View)
10.4"	GVTSA4T	800 x 600	1.200	50 k	LVDS	-20 ... +70		•	O-Film (All-View)
12.1"	GKVG1MNDK2A0	1280 x 800	1.300	30 k	LVDS	-20 ... +70			
12.1"	GKVG1M	1280 x 800	1.000	30 k	LVDS	-20 ... +70	•		
12.1"	GKVG1MDDK2A0	1280 x 800	1.000	30 k	LVDS	-20 ... +70		•	

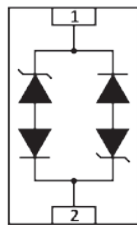
* 50 k available for a purchase quantity of 1,000 pieces.

Reserve technical changes!

CIRCUIT PROTECTION – ULTRA LOW CAPACITANCE TVS ARRAY



GBLC03CIDNHP
DFN-2 PACKAGE



GBLC03CIDNHP
PIN-CONFIGURATION

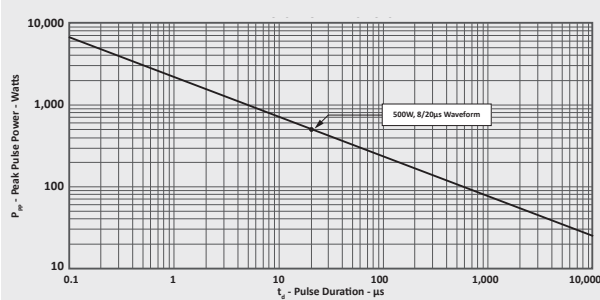
ProTek Devices has introduced two new circuit protection components that shield a variety of networking, mobile and other computing applications from the destructive effects of electrical transients.

The **GBLC03CIDNHP** is an ultra-low capacitance (0.6pF typical) transient voltage suppressor array (TVS array) available in a bidirectional configuration. It is ideal for Ethernet 10/100/1000 Base T, smartphones and other handheld wireless systems, and USB interfaces.

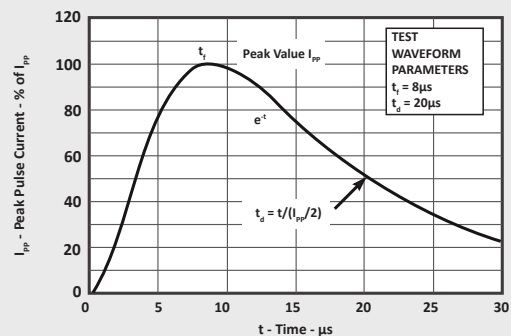
The GBLC03CIDNHP is rated at 500 Watts for an 8/20 micro second waveshape. It meets various IEC standards requirements. This includes 61000-4-2 (ESD): air - 15kV, contact - 8k, exceeding level 4, and handles 10kV contact and 25kV air discharge. It also includes 61000-4-4 (EFT): 40A - 5/50ns and IEC 61000-4-5 (surge). The GBLC03CIDNHP also offers low leakage current and is an ideal replacement for MLV (0805) devices. It protects one power or I/O port and provides ESD protection of > 25kV as well as a low clamping voltage. The GBLC03CIDNHP is provided in a molded JEDEC DFN-2 package with an approximate weight of only 0.8 milligrams. It features lead-free pure-tin plating (annealed) and is suitable for solder reflow temperature of 260 to 270°C. The component also meets UL 94V-0.

The GBLC03CIDNHP is RoHS and REACH compliant.

PEAK PULSE POWER VS. PULSE DURATION



PULSE WAVE FORM

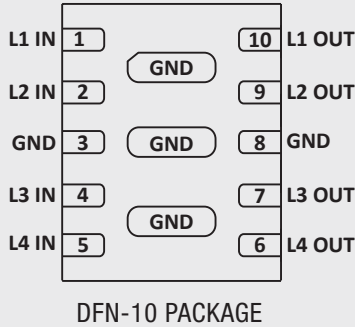


ELECTRICAL CHARACTERISTICS PER LINE

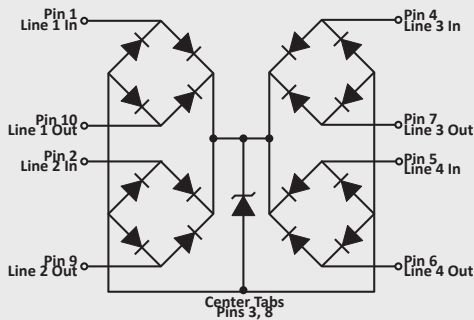
PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} [V]	MIN. BREAKDOWN VOLT. V_{BR} [V] @ 1mA	MAX. CLAMPING VOLT. [V] @ 8/20µs, $I_p = 1A$	MAX. CLAMPING VOLT. [V] @ 8/20µs @ I_{pp}	MAX. LEAKAGE CURR. I_b [µA] @ V_{WM}	TYP. CAPACITANCE [pF] @ 0V, 1MHz
GBLC03CIDNHP	CC	3.0	4.0	6.0	24 @ 20.0A	5	0.6

ULTRA LOW CAPACITANCE STEERING DIODE – SRV25-4LC

PIN CONFIGURATION SRV25-4LC



CIRCUIT DIAGRAM SRV25-4LC



The SRV25-4LC is a port protection array that also boasts ultra-low capacitance (1.0pF typical).

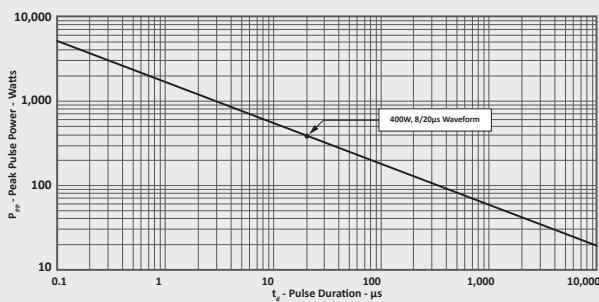
The SRV25-4LC is ideal for ESD protection in Gigabit Ethernet, smartphones and other similar portable electronics, video card interfaces, USB 2.0 interfaces, and DVI interfaces.

It can clamp the effects of electrical fast transients on the power bus. The SRV25-4LC combines eight low-capacitance steering diodes for up to four individual data or transmission lines and one TVS diode for power bus protection.

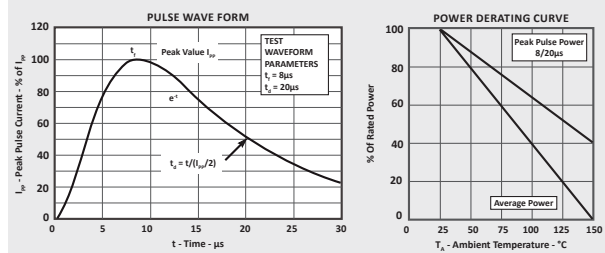
It meets the same IEC standards as the GBLC03CIDNHP. The SRV25-4LC offers 400 Watts peak pulse power per line (typical = 8/20 micro seconds). ESD protection is > 25 kilovolts and it also provides a low clamping voltage.

The SRV25-4LC is offered in a molded JEDEC DFN-10 package, which minimizes lead inductance to prevent overshoot voltages during high ESD current events. Its approximate weight is just 7 milligrams. It features lead-free pure-tin plating (annealed) and a solder reflow temperature of (pure-tin - Sn, 100) 260-270 degrees Celsius. The component also meets UL 94V-0.

PEAK PULSE POWER VS. PULSE DURATION



PULSE WAVE FORM / POWER DERATING CURVE



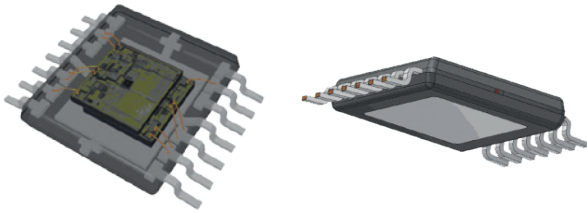
ELECTRICAL CHARACTERISTICS PER LINE

PART NUMBER	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} [V]	MIN. BREAKDOWN VOLTAGE V_{BR} [V] @ 1mA	MAX. CLAMPING VOLT. [V] @ 8/20µs, I_p				MAX. LEAKAGE CURR. I_b @ V_{WM}	CAPACITANCE [pF] @ 0V, 1MHz		
				$I_p=1A$	$I_p=10A$	$I_p=15A$	$I_p=20A$		typ.	max.	typ. I/O to I/O
SRV25-4LC	S4LC	2.5 *1	3.0 *1	4.5 *1	7.4 *1	10.0 *1	20.0 *2	0.1 µA	1.0	2.0	0.5

*1- Measured from I/O pin to ground

*2- Measured with I/O pins tied together

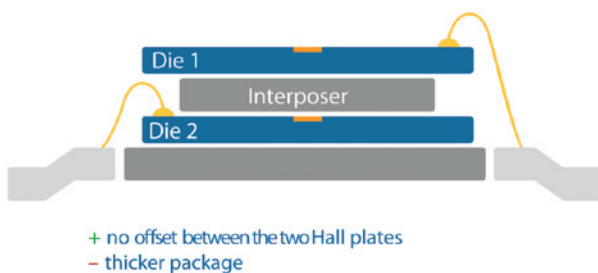
DUAL-DIE HALL EFFECT SENSORS – HAR37XY



Source: Micronas

The new HAR37xy Hall effect sensors integrate two silicon dice in a single SOIC8 package for high-precision direct-angle and linear position measurement for the most demanding automotive and industrial applications.

Each HAR37xy sensor contains two dice, which are glued upon each other (stacked die). They operate fully independently – mechanically separated and electrically insulated from one another. The electrical connections of each die are bonded to opposite sides of the package, thus preventing shortages between both dice. The stacked-die construction offers the advantage that the two Hall elements measure almost the same magnetic field, therefore ensuring synchronous output signals.



Source: Micronas

The sensors operate in a junction temperature range from -40°C to 170°C. For storing calibration parameters, the sensor is equipped with a high-temperature resistant non-volatile

memory.

HAR37xy sensors follow the trend of enabling true redundancy within a small package to support safety-critical automotive applications according to ISO26262 rules.

Application examples are:

- » Clutch position detection
- » Motor air management, such as EGR (Exhaust Gas Recirculation)
- » Throttle position
- » Turbo charger actuator

Sensor solutions with redundancy in a single package reduce system costs while at the same time increasing the reliability of the system due to smaller PCBs (Printed Circuit Board) and less solder joints. Occasionally, the PCB design already considers redundancy functions. In such case, the customer can choose a single-die or a dual-die sensor for assembly.

The HAR37xy sensors come in the same SOIC8 package as its parent family, the single-die HAL37xy. This leads to significant advantages: Customers already employing the single-die version can save most of the redesign efforts and can achieve fast time-to-market re-using the same magnetic circuit and module outline. Thanks to the same x/y positioning of the Hall elements, customers can use smaller magnets for their design compared to competitive solutions.

Samples of the HAR37xy family are available immediately. As design support you can use a Lab View-based software and high-quality application notes.

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