

endrich news

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New Technical Director at Endrich

We are pleased to inform you that as of October 1st, 2015 we were able to gain Mr. Dipl. Ing. Martin Kuntzer to fill the position of technical director.

Mr. Kuntzer will take over duties and responsibilities of Dr. Würth in the sector marketing, i.e. he has been named the new head of product management. He will assume the responsibility of maintaining relationships with existing producers and product lines and will undertake to advance the development of international client relationships and the integration of new product lines and producers.

He holds a degree in electrical engineering with an emphasis on automation technology which gives him a sound technical background. Further, he has gained experience in marketing by working for producers such as NEC and Bourns as well as distribution knowledge acquired through his function with Arrow-Spoerle and Avnet-EBV. In his last position Martin Kuntzer was employed as managing director of the company Mersen. It is this broad band of expertise which leads us to believe that he will perfectly supplement our team and that he will advance and accompany the positive development of Endrich.

We are convinced to have gained an exceptional and highly qualified contact in Mr. Kuntzer in the sector of product management and look forward to our continued fruitful cooperation.

Best regards
Endrich Vertriebs GmbH

CLASS I/II OUTDOOR LED DRIVERS WITH IMPROVED PERFORMANCE



EUD-150SxxDTA / EUD-150SxxDDA

Inventronics is pleased to announce the update of their family of 150W Class I/II programmable constant-current outdoor LED drivers that will reduce design and lead time while offering higher efficiency and surge protection – without adding cost or compromising performance. The Class I **EUD-150SxxDTA/DVA** and Class II **EUD-150SxxDDA** series are extremely flexible allowing the creation of hundreds of configurations via the programming interface. This helps to drastically reduce current inventory and removes the need to design-in a new LED driver for every generation of LEDs.

The rectangular, extruded-metal housing is more compact to enable more creative freedom on luminaire design. It is IP67 rated which is great for environmentally harsh indoor and outdoor conditions such as street, area, bay and tunnel lighting. To insure extended trouble-free operation, the upgraded EUD-150S product family also features over-voltage, over-temperature and short-circuit protection, plus external OTP for

LED module functionality and a high level of built-in surge protection: 6 kV line-to-line and 10 kV line-to-earth for Class I EUD-150SxxDTA/DVA, and 10 kV line-to-line for Class II EUD-150SxxDDA enabling these products to run cooler, significantly improving reliability and extending their life. The calculated lifetime of these drivers at 70°C case temperature has increased from 70,000 h to 100,000 h when operating at 80% load.

The Class I EUD-150SxxDTA/DVA series include 4 models of programmable constant-current drivers that can supply up to 150W at output currents from 700 to 5600 mA with a full-load efficiency up to 94.0%. The Class II EUD-150SxxDDA series include 2 models of programmable constant-current drivers that can supply up to 150W at output currents from 700 to 2100 mA with a full-load efficiency up to 93.5%. They can be programmed for 0-10V, PWM or any of 3 time-dimming modes, and they provide always-on 12V/200 mA auxiliary output and dim-to-off with ≤ 0.5 W standby power consumption, making them ideal for operation with a wide variety of sensors and controls for even greater energy savings. These products all operate over a 90-305Vac input range and provide excellent power factor correction.

This new family is approved to UL, CUL, FCC, ENEC, CE and CB standards. Production quantities of the Class I EUD-150SxxDTA/DVA and Class II EUD-150SxxDDA series are available now.

EUG-96SxxDT/DV EUG-150SxxDT/DV

The EUG family of programmable outdoor drivers is a more flexible, cost-effective alternative to the EUC family of fixed-current drivers, providing full output power over a range of output-current settings to reduce the number of driver SKUs needed to power an array of luminaire designs. The EUG family is also designed to be simpler and more cost-effective than the full-function EUD family which adds Dim-to-Off, always-on auxiliary power, longer lifetimes and DALI models.

This new family is approved to UL, FCC, CE, ENEC, CB, PSE and CCC standards.

KEY BENEFITS

- » Dim by 0-5V/0-10V/PWM/Internal Timer
- » Provide 12V auxiliary output power
- » Input surge protection: 6kV DM, 10kV CM
- » All-Around Protection: OVP, SCP, OTP
- » Watertproof (IP67)
- » SELV Output

- » TYPE HL, for use in a Class I, Division 2 hazardous location
- » Operate from 90-305Vac input
- » DT: Standard, 2 pins, VDE, Class 2 Output
- » DV: Standard, 3 pins, VDE, Suitable for Independent Use

EUG-96SxxxDT/DV:

- » 3 programmable models delivering up to 96W at output currents from 700-3500 mA
- » Full-load efficiency up to 93%
- » Calculated lifetime of 80,000 hours at 70°C and 80% load

EUG-150SxxxDT/DV:

- » 4 programmable models delivering up to 150W at output currents from 700-5600 mA
- » Full-load efficiency up to 93.5%
- » Calculated lifetime of 78,000 hours at 70°C and 80% load

TARGET MARKET

- » 150W models target high-output fixtures (above 12,000 lm) including: urban, street, area, high bay and tunnel lighting.
- » 96W models target medium-output fixtures (above 8,000 lm) including: urban, street, area, low bay and tunnel lighting

PIR-DETECTOR MODULE HT7M2XX6 – PIR SENSOR AND ELECTRONICS



FEATURES

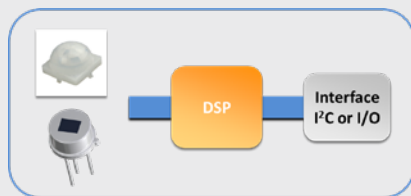
- » Operating voltage: 2.7V ~ 5.5V
- » Low power consumption:
 - operating mode (Moving objects) < 1.5 mA,
 - standby with detecting mode < 40 μ A (3.3V)
- » Intelligent signal recognition algorithm
- » Interfaces: I²C for Network Mode / I/O for Stand-alone Mode
- » Adjustable sensing sensitivity, Network Mode
- » Custom trigger modes: Single/Continuous, Network Mode
- » Adjustable trigger output time: 16-bit \times 100 ms, Network Mode
- » Low voltage detection: 2.0/2.2/2.4/2.7/3.0/3.3/3.6/4.0V options, Network Mode
- » Supports external optical sensors, e. g. photo transistors
- » Integrated temperature sensor with temp. compensation

HOLTEK's human body infrared detector modules, the HT7M2xx6 series, come fully integrated with optical lenses, a passive infrared (PIR) sensor and DSP algorithms. These modules include a wide range of features such as low power consumption, an I2C communication interface and DSP algorithms which improve the reliability of the PIR detector. Their application range includes home security and surveillance systems as well as basic industrial safety detection.

WHY USE PIR SOLUTIONS

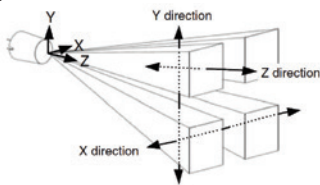
- » Can reliably detect passive infra red radiation
- » Reliable and inexpensive motion sensing solution
- » Excellent and reliable solution for detection of human, animal or other object presence and motion
- » Used in range of security products such as lighting and alarms
- » Complete range of Holtek devices for a wide range of PIR applications including MCU based solutions
- » Quick stabilisation: ready for stable operation within 12 seconds after power on

BLOCK DIAGRAM



PRODUCTS

PIR-MODULES



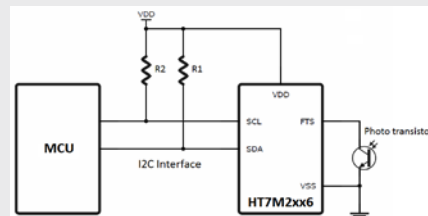
PART NUMBER	X, Y DIRECTION	Z DIRECTION
HT7M2126	121°, 77°	4 m ... 7 m
HT7M2136	91°, 10°	5 m ... 7 m
HT7M2156	10°, 20°	8 m ... 11 m
HT7M2176	86°, 75°	7 m ... 8 m

PIR-MCU

HT45F0027 – OPAs 2K-word Flash Memory, Low Power & High Performance

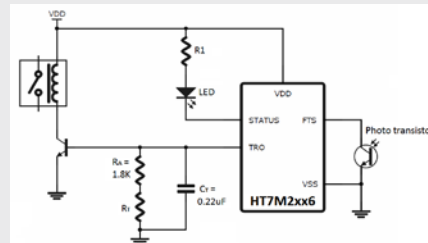
APPLICATION CIRCUITS

Network Mode



Pin #	Function	Description
1	VSS	Negative power supply, GND
2	VDD	Positive power supply
3	SDA	I2C interface Serial Data Input/Output
4	SCL	I2C interface Serial Clock Input
5	FTS	Photo transistor signal
6	VSS	Negative power supply, GND
7	ACT	Motion Detection Output
8	NC	Not connected

Stand-alone Mode



Operating voltage: 2.7V ~ 5.5V
 Intelligent signal recognition algorithm
 Communication interfaces: I2C for Network Mode or I/O for Stand-alone Mode
 Adjustable sensing sensitivity, Network Mode
 Custom trigger modes: Single/Continuous, Network Mode
 Adjustable trigger output time: 16-bit \times 100ms, Network Mode
 Low voltage detection: 2.0/2.2/2.4/2.7/3.0/3.3/3.6/4.0V options, Network Mode
 Supports external optical sensors, e.g. photo transistors
 Integrated temperature sensor with temperature compensation
 Quick stabilisation: ready for stable operation within 12 seconds after power on

AEC-Q200 QUALIFIED LOW CAPACITANCE ESD PROTECTION DEVICES



Most ICs are compact, highly integrated semiconductors that are manufactured with highest precision. These are used in various applications, such as laptops / computers, mobile phones, flat-panel displays. The silicon oxide layers of ICs are very thin and are susceptible to electrostatic discharge (ESD). Designers carry the risk that a non-use, or use of an unsuitable protection element, the application can draw an unstable performance, can be damage or possibly lead to a fatal failure. Therefore it is recommended that interfaces and ESD susceptible components of an application should be equipped with an ESD protection to prevent damage of the application.

The EGA protective elements of the manufacturer INPAQ provide this ESD protection without affecting the original circuit greatly. In the unused condition they have a high resistance. Fast response times (<1ns), low clamping voltages (30V), low leakage currents (<0.01µA), and a very low capacitance (0.2pF) are some of the main features.

Frequently, the ESD protection is taken into account in the final stage of system design. Designer then need the flexibility to select an ESD protection component that does not interfere with the PCB layout and require no additional board space. INPAQ's ESD solutions allow developers to add ESD components in the final stages of a design without any major change in the board layout.

In addition to the standard components INPAQ now offers new AEC-Q200 qualified products, the EGA AM series, which is used in the automotive sector.

The EGA devices typically protect antenna circuits and RF modules, as well as USB, HDMI, DVI interfaces. They are available in different versions to support a variety of PCB designs, to protect the application in the best way against ESD.

FEATURES

- » Qualified based on AEC-Q200
- » For RoHS Compliance.
- » Meet IEC61000-4-2 Level 4 standard
- » Extremely quick response time (<1ns)
- » Extremely low capacitance (0.2 pF typical)
- » Extremely low leakage current
- » Bi-directional device
- » More than 1000 pulses ESD withstand capability
- » Compact size for EIA 0402 and EIA0603
- » Operating temperature range: -55°C ... +125°C
- » Storage temperature range: -55°C ... +125°C

ORDERING CODE

E	G	A	1	0	6	0	3	V	2	4	A	M	-	□
1	2	3	4	5	6									

- ◆ 1 : ESDGUARD Series
- ◆ 2 : Single element
- ◆ 3 : Chip size, EIA0402, EIA 0603
- ◆ 4 : Max rated voltage, VDC
- ◆ 5 : "AM" : Model Code (Meet AECQ-200)
- ◆ 6 : Suffix for Special Code

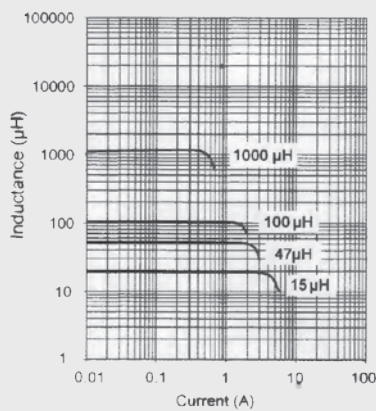
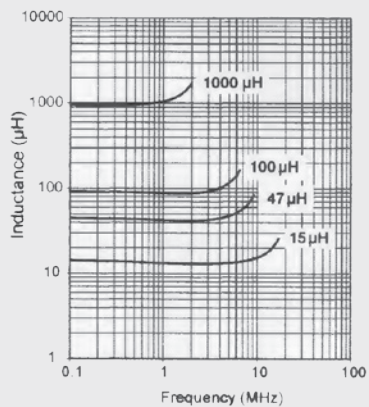
PERFORMANCE

PARAMETER	SPECIFICATION EGA10402			SPECIFICATION EGA10603		
	V05	V12	V24	V05	V12	V24
Rated voltage max. V_{DC} [V]	5	12	24	5	12	24
Leakage current I_L [µA]		0.01			0.01	
Peak voltage V_p [V]		300 typ.			300 typ.	
Trigger voltage V_t [V]		300 typ.			300 typ.	
Clamping voltage V_c [V]		30 typ.			30 typ.	
Capacitance @ 1 MHz C_p [pF]		0.2 typ.			0.2 typ.	
Response time [ns]		< 1			< 1	
ESD voltage capability, IEC 61000-4-2 Contact discharge mode		8 kV typ.			8 kV typ.	
ESD voltage capability, IEC61000-4-2 Air discharge mode		15 kV typ.			15 kV typ.	
ESD withstand pulses [pulses]		1000 typ.			1000 typ.	

PIHV4119 – A NEW NON-SHIELDED HIGH VOLTAGE POWER INDUCTOR



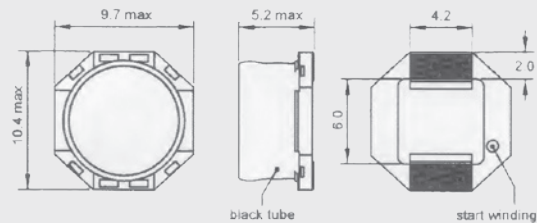
INDUCTANCE VS. FREQUENCY/CURRENT



FASTRON introduces the PIHV4119, a new high voltage SMD power inductor. Based on the successful PIS4119, FASTRON developed a compact 10 mm × 10 mm unshielded inductor for applications up to 400VDC. As well as its sister model the PIHV4119 provides a robust plastic moulded baseplate with integrated solder terminals. Lead free tinned terminals enable best reflow soldering results. Non-conducting ferrite cores as well as especially enameled copper wired coils provide the 400VDC capability and enable the part to withstand much higher voltage peaks. For improved protection towards other parts nearby, an isolation tube is pulled over the drum core. Due to the low profile height of 5.2mm the inductor is suitable for many power management applications, either as a filter and suppression-choke or as energy store in a power management circuit. Due to its universal field of applications the part will fit into several markets, e.g. lighting, automotive, computer, medical, industrial, consumer, communication and surveillance.

The PIHV4119 is offered in 12 different inductance values from 15 µH to 1000 µH with IR max. up to 3A and DCR down to 0.085 Ω. The operating temperature range is from -40°C up to +125°C. The components are suitable for lead-free soldering and are RoHS conform.

DIMENSIONS [mm]



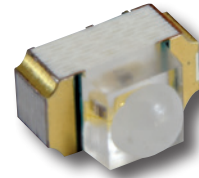
TECHNICAL DATA

PART NUMBER	INDUCTANCE L [µH]	f_L [kHz]	TOL ±[%]	SFR _{TYP} [MHz]	DCR _{MAX} [Ω]	I_{SAT} TYP [A]	I_R MAX [A]
PIHV4119-150M-04	15	100/0.1V	20	17.3	0.085	3.10	3.00
PIHV4119-220M-04	22	100/0.1V	20	13.7	0.120	2.60	2.60
PIHV4119-330M-04	33	100/0.1V	20	11.7	0.180	2.10	2.20
PIHV4119-470M-04	47	100/0.1V	20	10.0	0.240	1.85	1.90
PIHV4119-680M-04	68	100/0.1V	20	8.7	0.330	1.50	1.55
PIHV4119-101M-04	100	100/0.1V	20	7.1	0.450	1.30	1.45
PIHV4119-151M-04	150	100/0.1V	20	5.4	0.650	1.05	0.90
PIHV4119-221M-04	220	100/0.1V	20	4.5	1.000	0.85	0.71
PIHV4119-331M-04	330	100/0.1V	20	3.8	1.500	0.70	0.61
PIHV4119-471M-04	470	100/0.1V	20	3.1	2.000	0.60	0.50
PIHV4119-681M-04	680	100/0.1V	20	2.6	3.000	0.50	0.45
PIHV4119-102M-04	1000	100/0.1V	20	2.2	4.450	0.40	0.34

new

INFRARED EMITTER DIODE IRP3016V24-E5 – SIDE VIEW PACKAGE

The **IRP3016V24-E5** is a GaAlAs infrared LED in a small SMD package. The device has a peak wavelength of 940nm LED spectrally matched with phototransistor or photodiode.



FEATURES

- » Small side view package 3.0×2.34×1.6 mm³
- » Viewing Angle = ±22.5 °
- » High reliability
- » Good spectral matching to Si photo detector
- » RoHS compliance

APPLICATIONS

- » Infrared sensor
- » Infrared Touch Panel applications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING
Continuous forward current I_F [mA]	70
Peak forward current I_{FP} [A] (pulse≤100μs, duty≤1%)	1
Reverse voltage V_R [V]	5
Operating temperature T_{OPR} [°C]	-40 ... +85
Storage temperature T_{STG} [°C]	-40 ... +100
Thermal resistance (junction-ambient) $R_{th(j-a)}$ [°C/W]	540
Power dissipation P_D [mW]	120

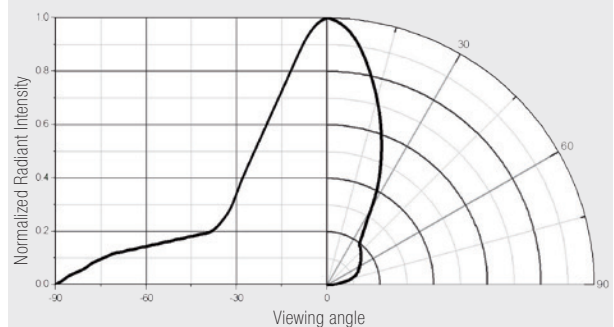
ELECTRO-OPTICAL SPECIFICATIONS

PARAMETER	RATING		
	min.	typ.	max.
Radiant intensity @ $I_F=20mA$ I_θ [mW/sr]	3.5	4.65	6.5
Radiant intensity @ $I_F=70mA$ I_θ [mW/sr]	-	16.0	-
Peak wavelength @ $I_F=20mA$ λ_p [nm]	-	940	-
Spectral bandwidth @ $I_F=20mA$ $\Delta\lambda$ [nm]	-	30	-
Angle of half intensity @ $I_F=20mA$ $\theta_{1/2}$ [deg]	-	-	-
Forward voltage @ $I_F=20mA$ V_F [V]	1.0	1.25	1.5
Forward voltage @ $I_F=70mA$ V_F [V]	1.1	1.38	1.7
Reverse current @ $V_R=5V$ I_R [μA]	-	-	10

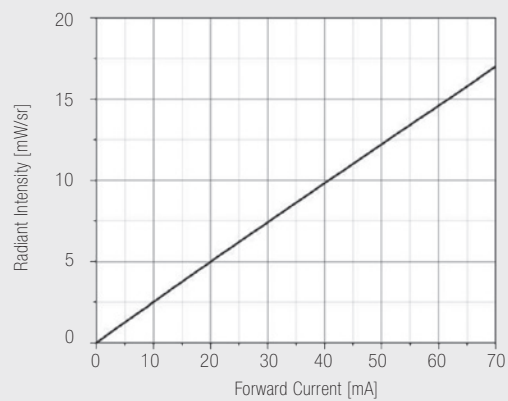
Ie BIN RANK

Bin Code	Fa	Ga
Min.	3.5	4.5
Max.	4.5	6.5

ANGULAR DISPLACEMENT



RADIANT INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

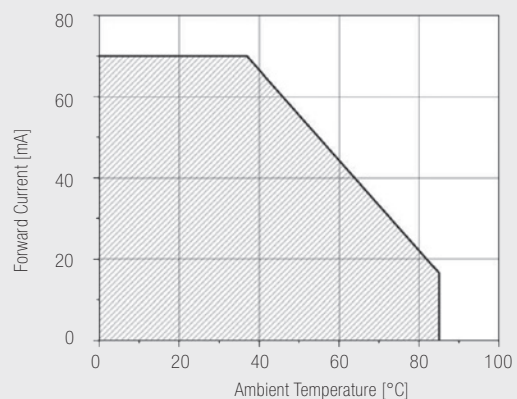
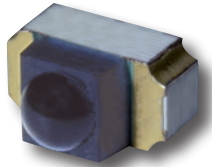
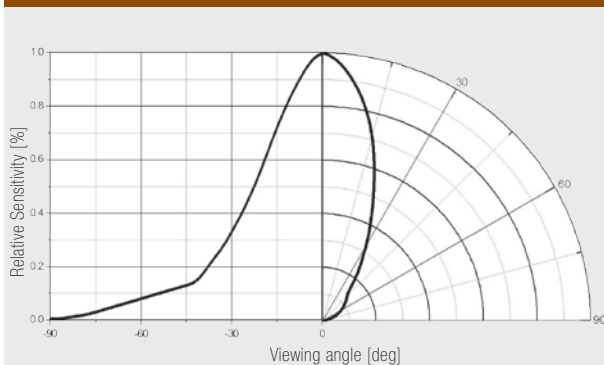


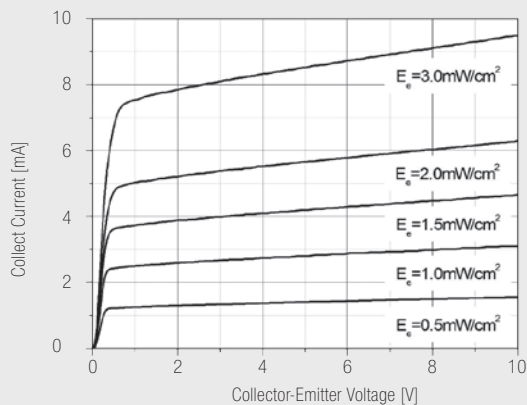
PHOTO TRANSISTOR PTP83016BT24 – SIDE VIEW PACKAGE



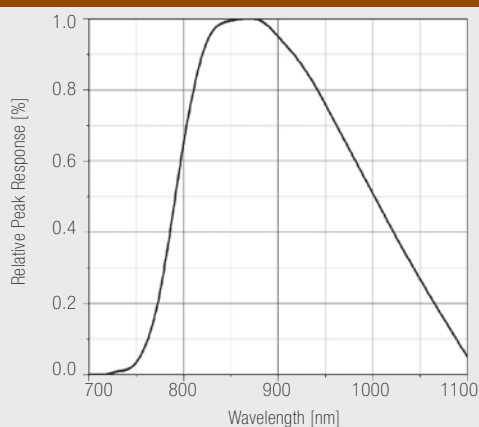
ANGULAR DISPLACEMENT



COLLECT CURRENT VS. COLLECTOR-EMITTER VOLTAGE



PEAK RESPONSE VS. WAVELENGTH



The **PTP83016BT24** is a silicon NPN phototransistor in SMD package. The device comes with a superior filtering for visible light by utilizing special black molding compound.

FEATURES

- » Small side view package $3.0 \times 2.34 \times 1.6 \text{ mm}^3$
- » High photo sensitivity
- » High reliability
- » Spectral range of sensitivity; 760 nm ... 1100 nm
- » Fast response time
- » RoHS compliance

ANWENDUNGEN

Infrared sensor and Infrared Touch Panel applications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING
Collector current I_C [mA]	20
Collector-Emitter Voltage $B_{V_{CE0}}$ [V]*	35
Emitter-Collector Voltage $B_{V_{CE0}}$ [V]**	5
Operating temperature T_{OPR} [°C]	-40 ... +85
Storage temperature T_{STG} [°C]	-40 ... +100

ELECTRO-OPTICAL SPECIFICATIONS

PARAMETER	RATING	min. typ. max.		
		min.	typ.	max.
Spectral bandwidth \square [nm]		760	-	1100
Peak sensitivity \square_p [nm]		-	880	-
Angle of half intensity @ $V_{CE}=5 \text{ V}$ $\square_{1/2}$ [deg]		-	± 22.5	-
Dark current I_{CEO} [nA] @ $E_e=0 \text{ mW/cm}^2$, $V_{CE}=20 \text{ V}$		-	-	100
Coll.-Emitt. saturation voltage $V_{CE(sat)}$ [V] $E_e=1 \text{ mW/cm}^2$, $I_C=1.4 \text{ mA}$		-	-	0.4
Collector light current I_C [mA] @ $E_e=1 \text{ mW/cm}^2$, $V_{CE}=5 \text{ V}$, $\square_p=940 \text{ nm}$		1.4	2.8	4.4
Terminal capacitance C_T [pF] @ $E_e=0 \text{ mW}$, $V_{CE}=5 \text{ V}$, $f=1 \text{ MHz}$		-	3.80	-
Rise time t_r [μs]		-	6	-
Fall time t_f [μs]		-	7	-
Turn on delay time t_{on} [μs]		-	11	-
Turn off delay time t_{off} [μs] @ $V_{CE}=5 \text{ V}$, $R_L=100 \Omega$, $I_C=1 \text{ mA}$		-	7.9	-

IC BIN RANK (Tolerance of Collector Light Current: $\pm 10\%$)

Bin Code	Ta	Tb
Min.	1.4	2.4
Max.	2.4	4.4

ULTRAPRECISION THIN-FILM RESISTOR/RADIAL LEAD – TYPE LRG020



The ultra-precision thinfilm resistor **LRG020** was introduced from SUSUMU, the technology leader in this segment with a resistance tolerance of $\pm 0.01\%$ and a TCR of $2 \text{ ppm}/^\circ\text{C}$ features unmatched reliability and excellent stability at different environmental conditions. Furthermore they low noise, thin film (NiCr) construction, RoHS compliance and 100% lead-free are its qualities.

SPECIFICATIONS

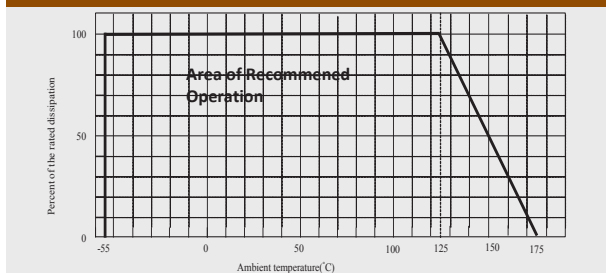
	TYPE	LEAD PITCH	POWER RATING	R-TOLERANCE	TCR	MAX. OPERATING VOLTAGE	R-VALUES
LRG020		5.08 mm 3.81 mm*	0.3W (at 70°C)	$\pm 0.01\%$ (L) $\pm 0.02\%$ (P) $\pm 0.05\%$ (W) $\pm 0.1\%$ (B)	$\pm 2 \text{ ppm}/^\circ\text{C}$ (L) $\pm 5 \text{ ppm}/^\circ\text{C}$ (V)	250V	100 Ω ... 100 k Ω (E-24, E-96)

* on request

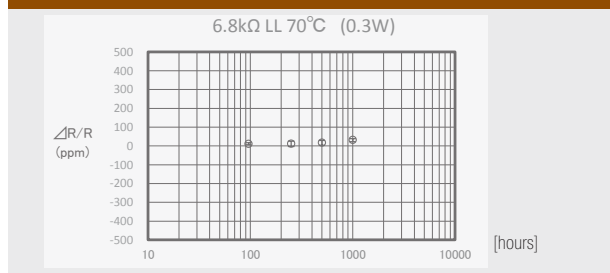
RELIABILITY TEST DATA (TEST METHOD MIL-PRF-55342 (JIS C5201-1))

PARAMETER	CONDITIONS	ΔR LIMITS
Short Time Overload	2.5 times of Rated Load, 5s	$\pm 0.05\% + 0.01 \Omega$
Load Life	70°C Rated Load 90 min. On/30 min. Off, 2000 cycles	$\pm 0.05\% + 0.01 \Omega$
Temp. Hum. Bias	85°C 85% RH 1/10 power loaded 90 min./ 30 min. Off, 2000 cycles	$\pm 0.05\% + 0.01 \Omega$
Thermal Shock	-65°C (30 min)/room temp.(2 min) /+150°C(30 min)/room temp. (2 min.), 100 cycles, no bias	$\pm 0.05\% + 0.01 \Omega$
High Temperature	155°C for 1000h, no bias	$\pm 0.05\% + 0.01 \Omega$

POWER DERATING CURVE



LOAD LIFE TEST 1000 h, 70°C, POWER RATING



new

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