

PG36JSSMAF is designed suitable to protect sensitive automotive circuits against surges defined in ISO 7637-2 and against electrostatic discharges according to IEC 61000-4-2. So it has high reliability and low clamping voltage.

FEATURES

- 600 Watts peak pulse power capability with a 10/1,000μs waveform
- Excellent clamping voltage
- Unidirectional-type
- Package size : 4.2 X 2.7 X 1.0mm³
- Pb-Free, Halogen-Free, Rohs compliant
- suffix U: Qualified to AEC-Q101
ex) PG36JSSMAF-RTK/HU
- Transient protection for automotive circuit and sensitive electronic equipment
 - IEC61000-4-2(ESD) : Air mode ±30kV / Contact mode ±30kV
 - ISO7637-2(Pulse 1 IV, 2a/2b IV, 3a/3b IV)

PACKAGE DIMENSION(SMAF)

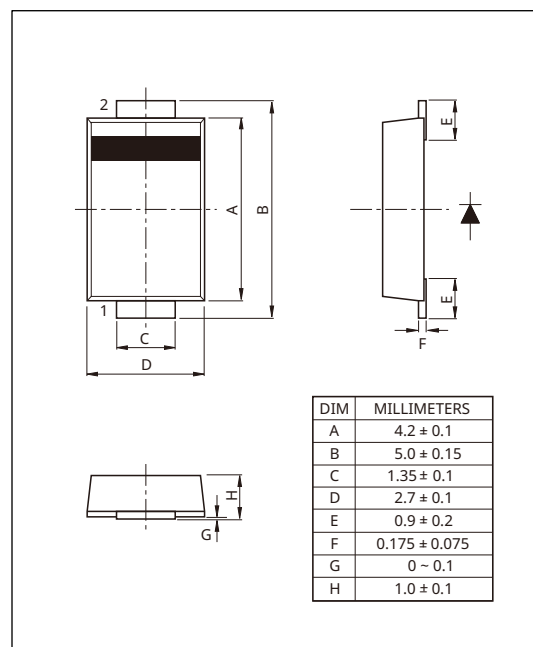


Table 1. Test pulse severity level of nominal 12V, 24V

Test Pulse	Nominal 12V system test pulse severity level			Nominal 24V system test pulse severity level			Min number of pulses or test time	Burst cycle/pulse repetition time	
	IV	III	I / II	IV	III	I / II		Min	Max
1	-150	-112	-75	-600	-450	-300	500 pulse	0.5s	*e
2a	+112	+55	+37	+112	+55	+37	500 pulse	0.2s	5s
2b	+10	+10	+10	+20	+20	+20	10 pulse	0.5s	5s
3a	-220	-165	-112	-300	-220	-150	1h	90ms	100ms
3b	+150	+75	+75	+300	+220	+150	1h	90ms	100ms

*e) The maximum pulse repetition time shall be chosen such that it is the minimum time for the DUT to be correctly initialized before the application of the next pulse and shall be $\geq 0.5s$

MECHANICAL DATA

- Package: SMAF
- Molding compound flammability rating : UL94V-0
- Moisture sensitivity: level 1, per J-STD-020
- Terminal
- Polarity indicator: Cathode band
- Weight: $\cong 0.034$ grams

PRODUCT DATASHEET

Single Line TVS Diode - PG36JSSMAF

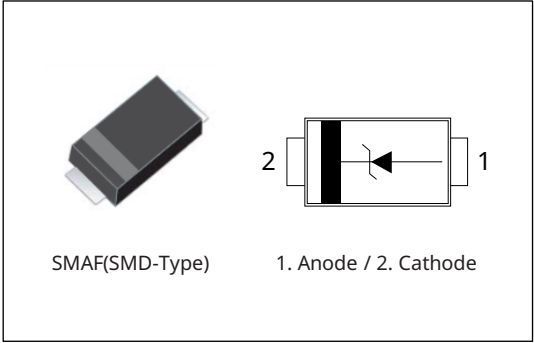
APPLICATION

- Motor control
- Inside cabin(lighting)
- Headlamps(lighting)
- ECU(lighting)
- E-call
- Engine cooling system
- Infotainment and navigation
- Camera
- Remote keyless entry
- On-board battery charger
- Battery management system
- Vehicle communication
- Power line

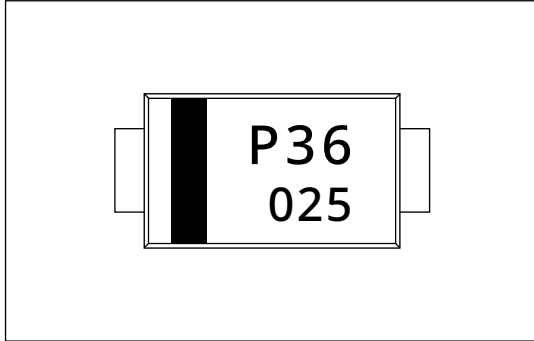
ORDERING INFORMATION

PART NUMBER	QTY per reel	Reel size
PG36JSSMAF	3,000	7 inch

PIN CONFIGURATION



MARKING CODE



PRODUCT DATASHEET

Single Line TVS Diode - PG36JSSMAF

MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Pulse Power with 10/1,000μs waveform at Ta=25°C	P _{PK}	600	W
Peak Pulse Current with 10/1,000μs waveform at Ta=25°C	I _{PP}	12.8	A
Peak forward surge current with 8.3ms single half sine wave	I _{FSM}	170	A
Junction Temperature	T _J	150	°C
Operating Junction Temperature	T _{opr}	-40 ~ 150	°C
Storage Temperature	T _{STG}	-40 ~ 150	°C

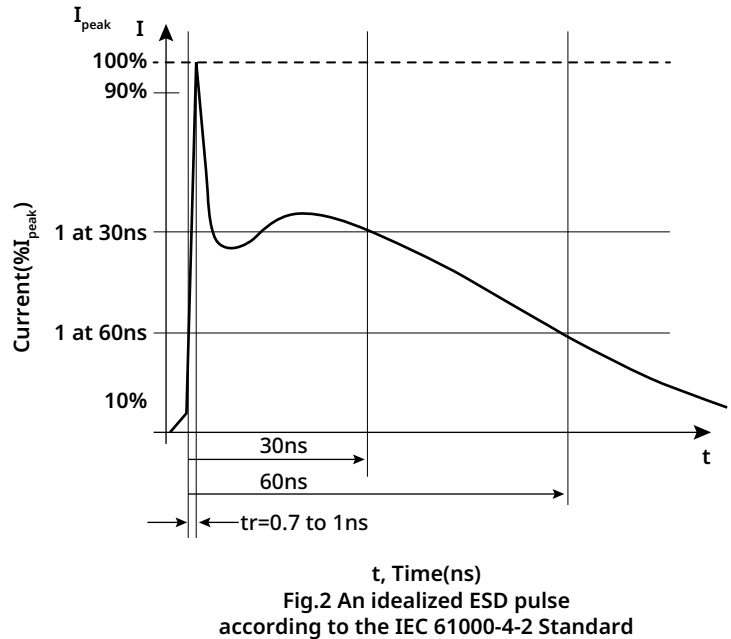
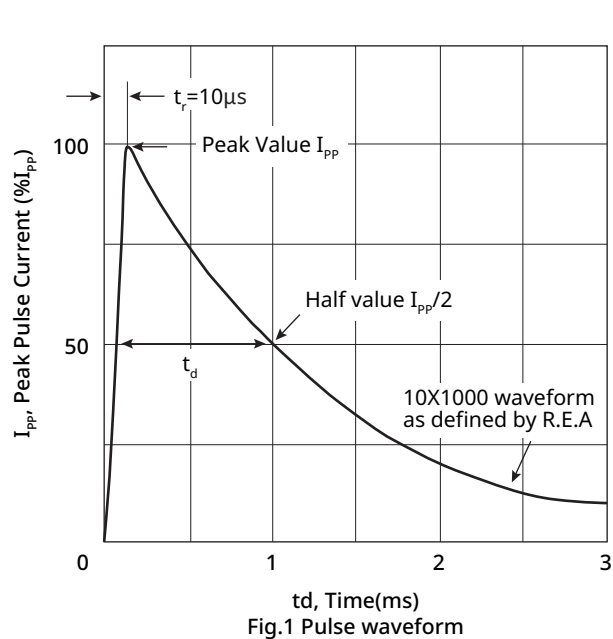
Note 1) Non-repetitive pulse

Note 2) Mounted on a pad dimension 5X5mm to each terminals in FR-4 glass epoxy board of 20X20mm

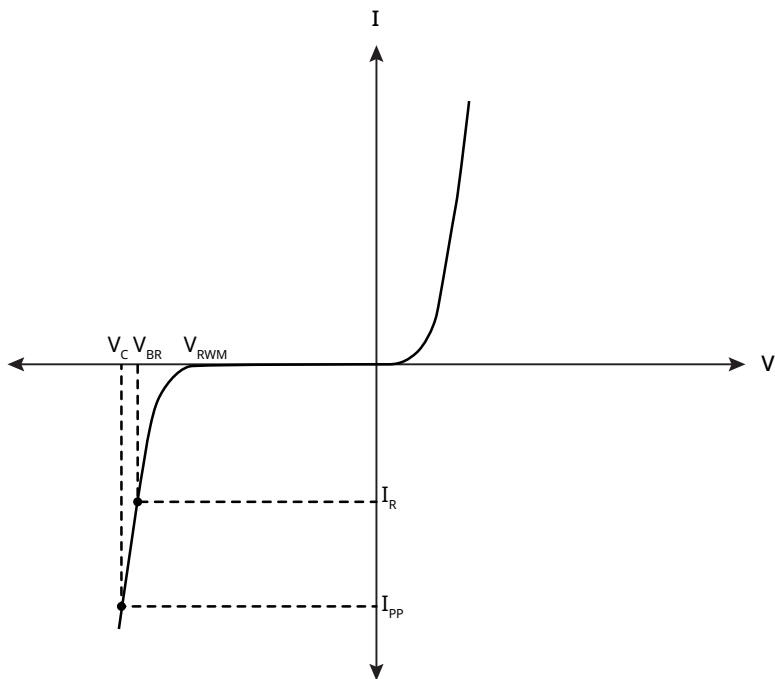
THERMAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CONDITION	VALUE	UNIT
Thermal Resistance(Note2)	R _{th(j-a)}	Junction to Ambient	Typ 90	°C/W

Note 2) Mounted on a pad dimension 5X5mm to each terminals in FR-4 glass epoxy board of 20X20mm



DEFINITIONS OF ELECTRICAL CHARACTERISTICS SYMBOL



V _{RWM}	Maximum voltage rated for DC operating voltage
I _R	The maximum leakage current is the maximum current measured at the working voltage
V _{BR}	The breakdown voltage is the minimum reverse voltage that makes the diode conduct appreciably in reverse
Y _Z	Variation value of voltage due to temperature change
V _C	Maximum voltage drop during going to I _{pp} (Limited voltage)
R _{DYN}	Current fluctuation rate/voltage fluctuation rate
C _T	Capacitance of device
V _{ESD}	A discharge voltage in which a finite amount of charge rapidly moves between two objects having different potentials

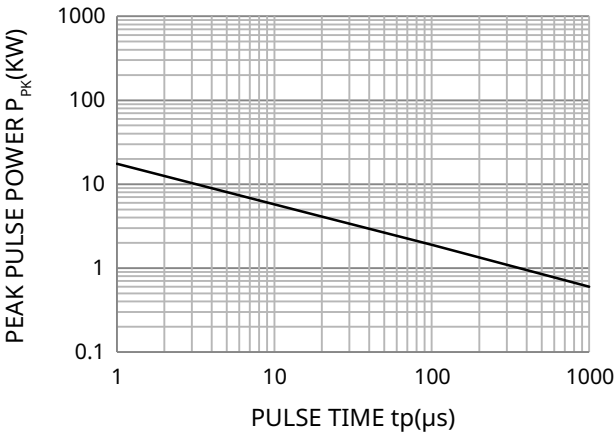
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Stand-Off Voltage	V _{RWM}	-	-	-	36	V
Reverse Leakage Current	I _R	V _R =36V	-	-	0.1	μA
Breakdown Voltage	V _{BR}	I _T =1mA	40.0	-	44.2	V
Temperature Coefficient(Note 2)	δ _Z	I _T =1mA(@Ta=25 to 85°C)	-	30	-	mV/°C
Clamping Voltage(Note 1, Fig 1)	V _{C1}	I _{pp1} =1A, tp=10/1,000μs	-	-	44.8	V
	V _{C2}	I _{pp2} =18.5A, tp=10/1,000μs	-	45	47.2	V
Dynamic Resistance	R _{DYN}	(V _{C2} -V _{C1})/(I _{pp2} -I _{pp1})	-	0.13	-	Ω
Total Capacitance	C _T	V _R =0V, f=1MHz	-	-	800	pF
Electrostatic Discharge	V _{ESD}	IEC61000-4-2	Air	±30	-	kV
			Contact	±30	-	

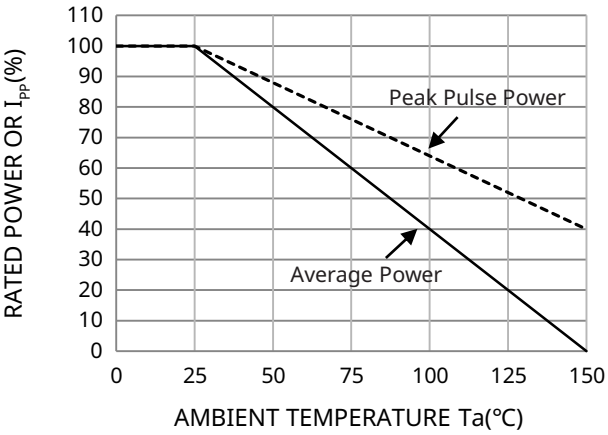
PRODUCT DATASHEET

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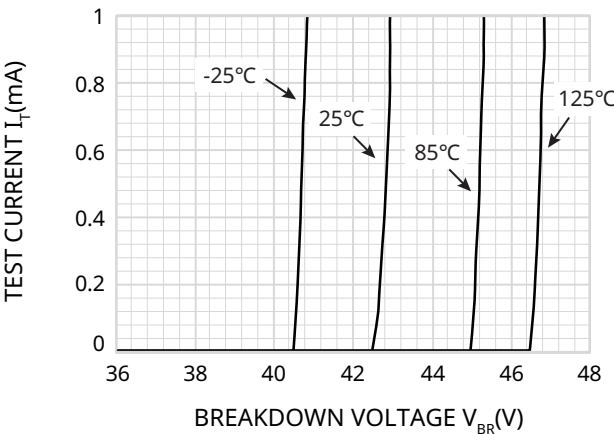
NON-REPETITIVE PEAK PULSE POWER VS. PULSE TIME



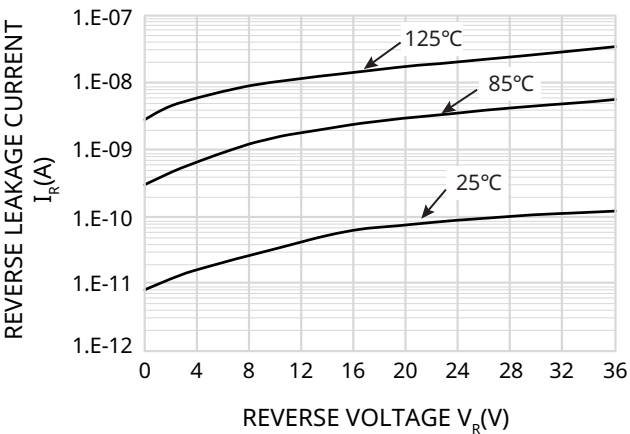
POWER DERATION CURVE



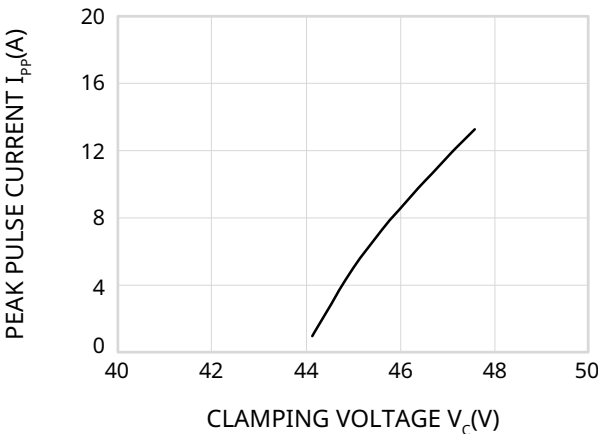
TEST CURRENT VS. BREAKDOWN VOLTAGE



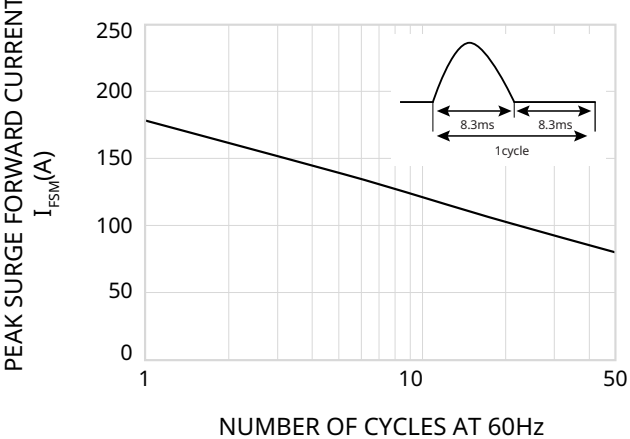
REVERSE LEAKAGE CURRENT VS. REVERSE VOLTAGE



PEAK PULSE CURRENT VS. CLAMPING VOLTAGE

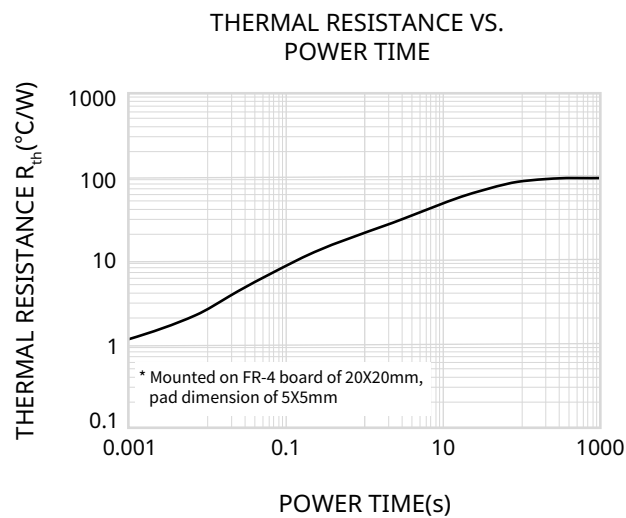
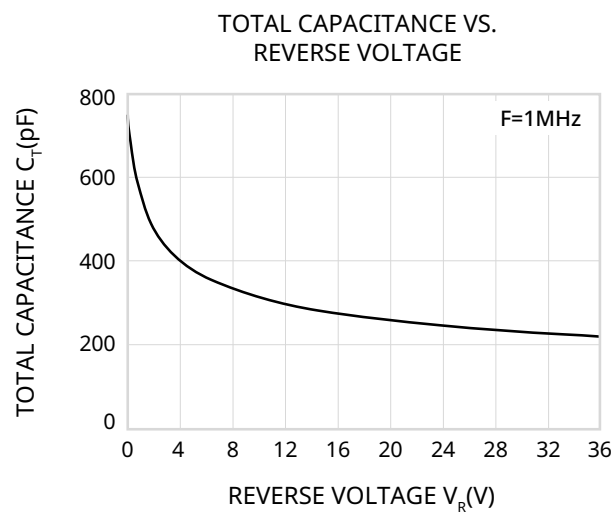


I_{FSM} - CYCLE CHARACTERISTICS



PRODUCT DATASHEET

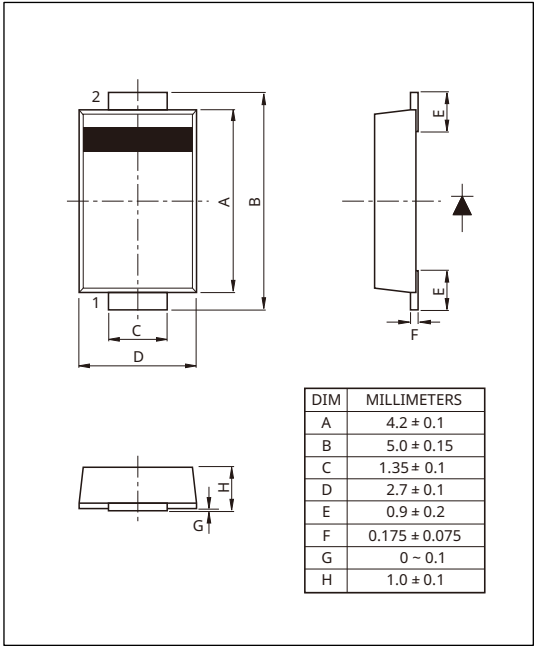
Single Line TVS Diode - PG36JSSMAF



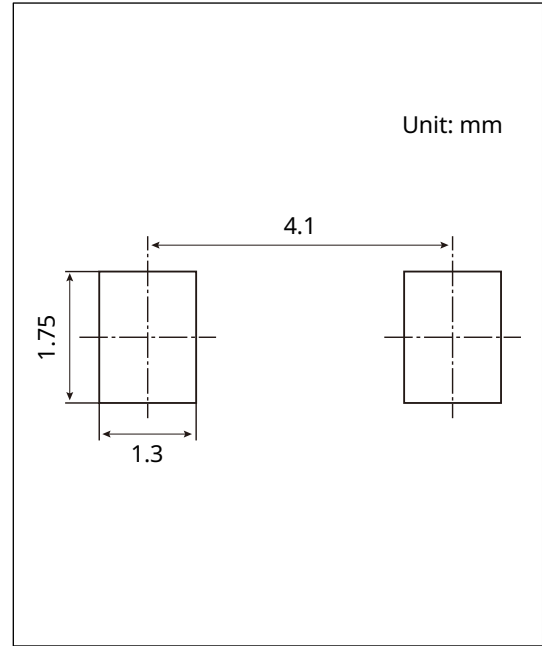
PRODUCT DATASHEET

Single Line TVS Diode - PG36JSSMAF

PACKAGE INFORMATION(SMAF)



RECOMMENDED PAD DIMENSION



PRECAUTION ON USING KEC PRODUCTS

1. The products described in this data are intended to be used in general-purpose electronic equipment.
(Office equipment, telecommunication equipment, measuring equipment, home appliances)
2. When you intend to use these products with equipment or device which require an extremely high of reliability and special applications (such as automobile, air travel aerospace, transportation equipment, life support, system and safety devices) in which special quality and reliability and the failure or malfunction of products may directly jeopardize or harm the human body or damage to property and any application other than the standard application intended, please be sure to consult with our sales representative in advance.
3. On designing your application, please use product within the ranges guaranteed by KEC for maximum rating, operating supply voltage range, heat radiation characteristics and other characteristics. User shall be responsible for failure or damage when used beyond the guaranteed ranges.
4. The technical information described in this data is limited to showing representative characteristics and applied circuit examples of the products and it does not constitute the warranting of industrial property, the granting of relative rights, or the granting of any license.
5. What are described in the data may be changed without any prior notice to reflect new technical development. Please confirm that you have received the latest product standards or specification before final design, purchase or use.
6. Although KEC is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors. Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. KEC shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by KEC.

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