M2-SMA-42M

表面安装普通整流二极管

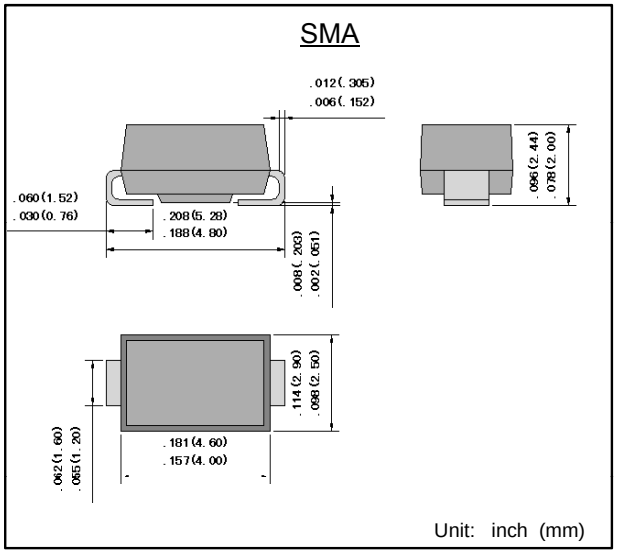
反向电压 50 ~ 1000 V

正向电流 1.0 A

Surface Mount General-purpose Rectifiers

Reverse Voltage 50 ~ 1000 V

Forward Current 1.0 A



特征 Features

- 反向漏电流低 Low reverse leakage
- 正向浪涌承受能力强 High forward surge capability
- 高信赖性 High reliability
- 高温焊接保证 High temperature soldering guaranteed:
  260℃/10 秒
  260℃/10seconds
- 引线和管体皆符合RoHS标准
  Lead and body according with RoHS standard

机械数据 Mechanical Data

- 封装外形:SMA 塑封 Case:SMA Molded plastic
- 环氧树脂：UL易燃等级：94V-0
  Epoxy: UL 94V-0 rate flame retardant
- 引脚：镀锡,无铅 Lead: Pure tin plated, lead free

最大值和特性 TA = 25℃ 除非另有规定。

Maximum Ratings & Characteristics Ratings at 25℃ ambient temperature unless otherwise specified.

参数 Parameter	符号 Symbols	M2	单位 Unit
最大可重复峰值反向电压 Maximum repetitive peak reverse voltage	V_{RRM}	100	V
最大均方根电压 Maximum RMS voltage	V_{RMS}	70	V
最大直流阻断电压 Maximum DC blocking voltage	V_{DC}	100	V
最大正向平均整流电流 Maximum average forward rectified current	$I_{F(AV)}$	1.0	A
正向不重复浪涌电流 8.3 ms单一正弦半波 Non-repetitive peak forward surge current 8.3 ms singlehalf sine-wave	I_{FSM}	30	A
最大正向电压 @IF=1.0A TA=25℃ Maximum forward voltage	V_F	1.1	V
最大反向电流 @V_{DC} Maximum reverse current	I_R	5	μA
典型热阻 Typical thermal resistance (Note 1)	RθJA	85	℃/W
工作结温和存储温度 Operating junction and storage temperature range	Tj, TSTG	-55 --- +150	℃

备注 Note:

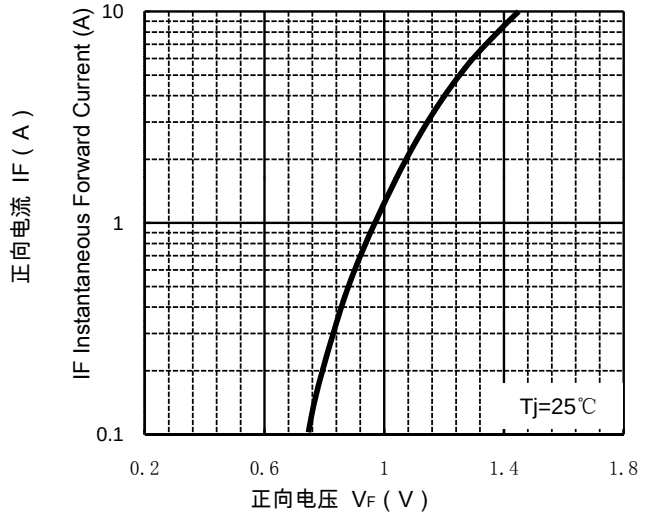
1) 安装在PCB板上，从PN结到周围环境的热阻。

1) Thermal resistance from junction to ambient, PCB mounted.

特性曲线 Characteristic Curves

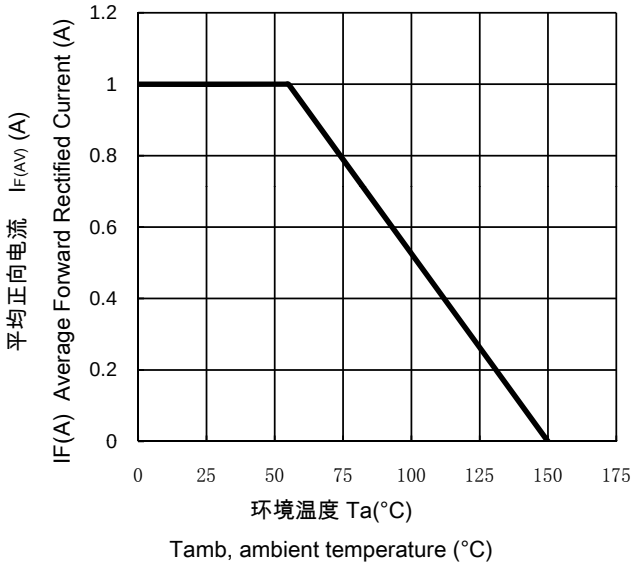
正向特性曲线（典型值）

TYPICAL FORWARD CHARACTERISTIC



正向电流降额曲线

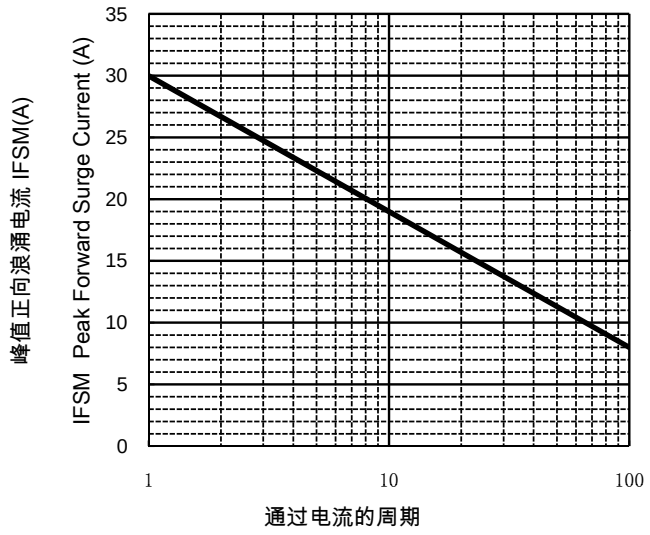
FORWARD CURRENT DERATING CURVE



浪涌特性曲线（最大值）

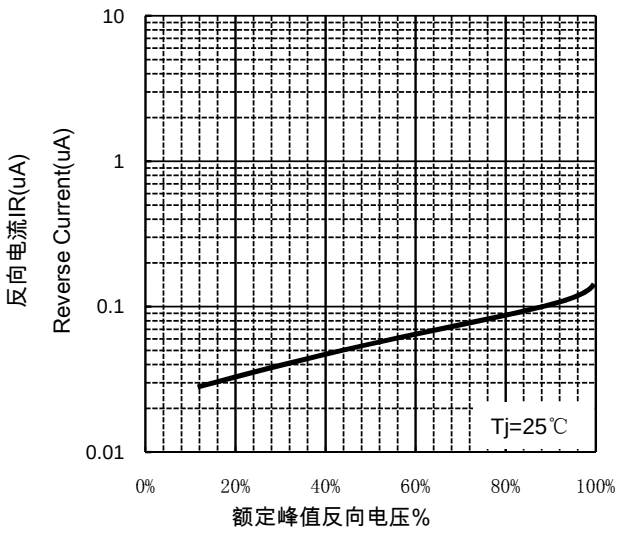
MAXIMUM NON REPETITIVE

PEAK FORWARD SURGE CURRENT



反向特性曲线

Typical Reverse Characteristics



ES2A THRU ES2J

Reverse Voltage - 50 to 600 Volts Forward Current - 2.0 Ampere

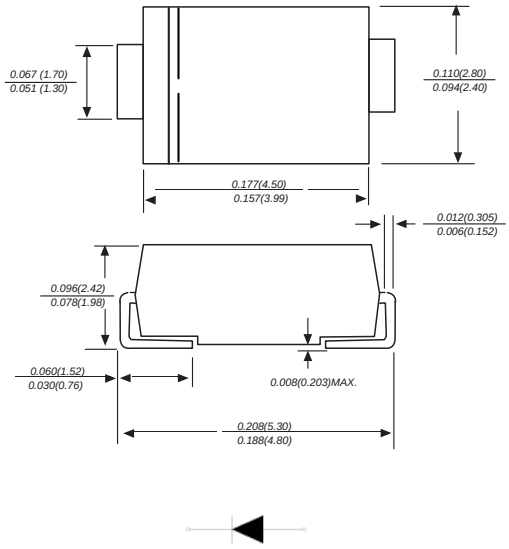
SURFACE MOUNT SUPER FAST RECOVERY RECTIFIER

Features

DO-214AC/SMA

RoHS COMPLIANT

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief,ideal for automated
- placement High forward surge current capability
- High temperature soldering guaranteed:
- 250°C/10 seconds at terminals
  Glass passivated chip junction



Dimensions in inches and (millimeters)

Mechanical Data

Case : JEDEC DO-214AC/SMA Molded plastic body
Terminals : Solder plated, solderable per MIL-STD-750,Method 2026
Polarity : Polarity symbol marking on body
Mounting Position : Any
Weight : 0.0019 ounce, 0.055grams

Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unlss otherwise specified.

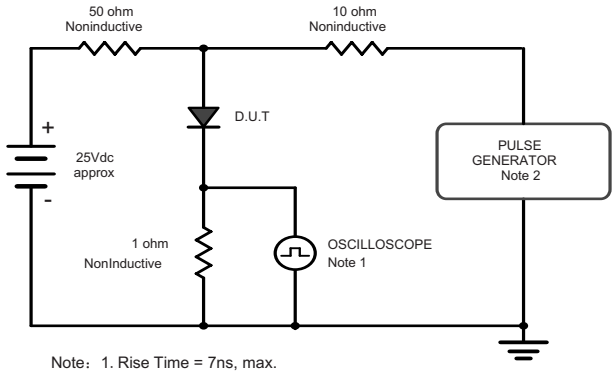
Single phase half-wave 60Hz,resistive or inductive load,for capacitive load current derate by 20%.

Parameter / Marking Code	SYMBOLS	MDD ES2A	MDD ES2B	MDD ES2C	MDD ES2D	MDD ES2E	MDD ES2G	MDD ES2J	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	600	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	420	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	600	V
Maximum average forward rectified current at Tc=125℃	$I_{(AV)}$	2.0							A
Peak forward surge current 8.3ms single half sine-wave superimposed onrated load (JEDEC Method)	I_{FSM}	50							A
Maximum instantaneous forward voltage at 2.0A	V_F	1				1.25		1.68	V
Maximum DC reverse current T_A=25℃ at rated DCblocking voltage T_A=125℃	I_R	5.0 100.0							uA
Maximum reverse recovery time (NOTE 1)	t_{rr}	35							ns
Typical junction capacitance (NOTE 2)	C_J	40.0							pF
Typical thermal resistance (NOTE 3)	$R_{\theta JA}$	60.0							℃/W
Operating junction and storage temperature range	T_J,T_{STG}	-55to+150							℃

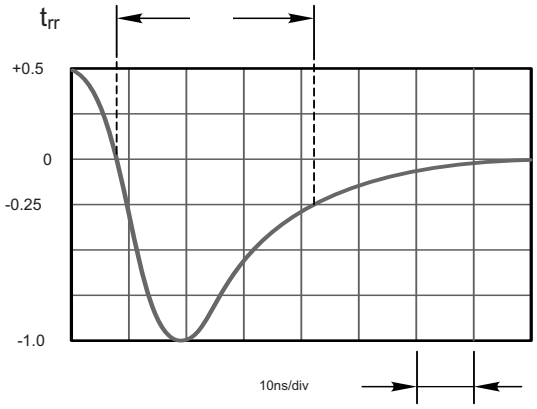
Note:1.Reverse recovery condition I_F=0.5A,I_R=1.0A,Irr=0.25A
2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
3.Pulse test: Pulse width 200 sec, Duty cycle 2%
4..P.C.B. mounted with 1.0 X 1.0" (2.54 X 2.54 cm) copper pad areas.

Ratings And Characteristic Curves

Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram



Note：1. Rise Time = 7ns, max.
Input Impedance = 1megohm,22pF.
2. Ries Time =10ns, max.
Source Impedance = 50 ohms.



Set time Base for 10ns/div

Fig.2 Maximum Average Forward Current Rating

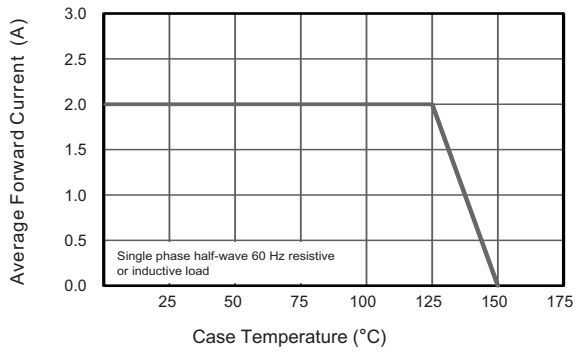


Fig.3 Typical Reverse Characteristics

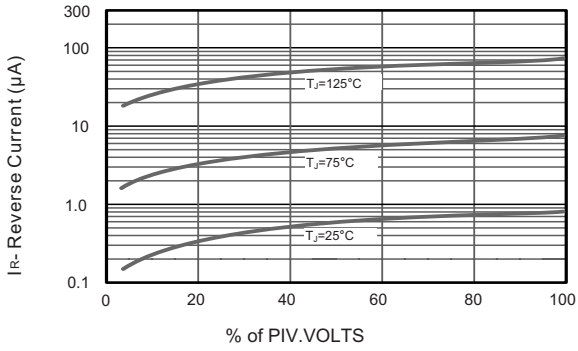


Fig.4 Typical Forward Characteristics

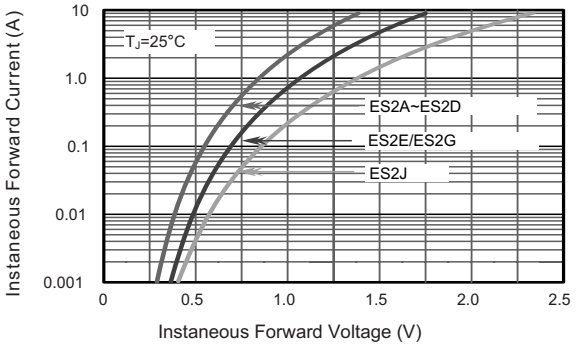


Fig.5 Typical Junction Capacitance

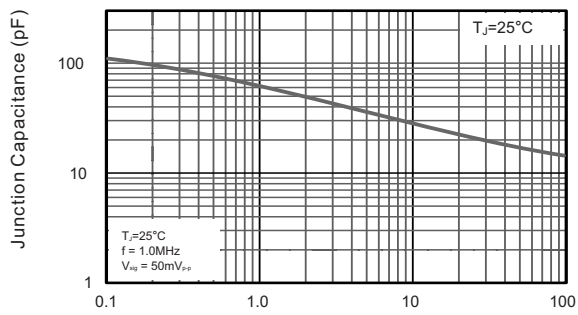
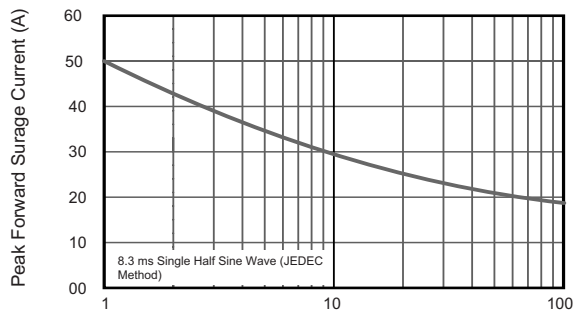
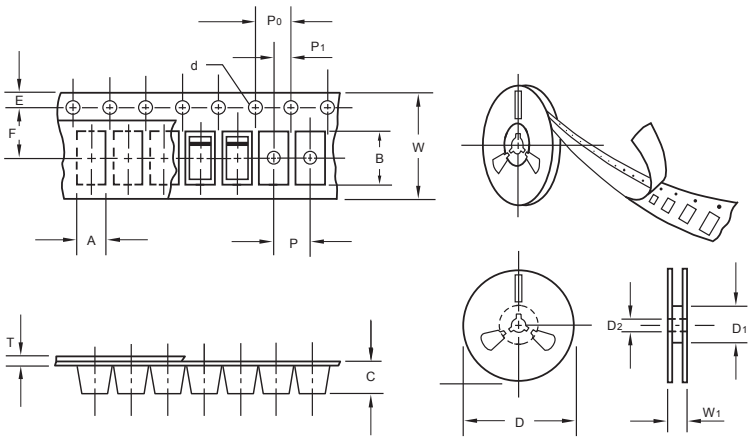


Fig.6 Maximum Non-Repetitive Peak Forward Surage Current



The curve above is for reference only.

Packing information



unit:mm

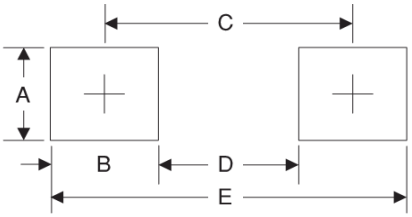
Item	Symbol	Tolerance	SMA
Carrier width	A	0.1	2.80
Carrier length	B	0.1	5.33
Carrier depth	C	0.1	2.36
Sprocket hole	d	0.05	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D_1	min	50.00
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	62.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.28
Tape width	W	0.3	12.00
Reel width	W_1	1.0	18.00

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SMA	7"	2,000	4.0	4,000	183*155*183	178	382*356*392	80,000	16.0
SMA	11"	5,000	4.0	10,000	290*290*38	330	310*310*360	80,000	11.0
SMA	13"	7,500	4.0	15,000	335*335*38	330	350*330*360	120,000	14.5

Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	1.68	0.066
B	1.52	0.060
C	3.93	0.154
D	2.41	0.095
E	5.45	0.215