US1A~US1M

High Efficiency Recovery rectifiers

Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junctions
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- High temperature soldering：
  260℃/10 seconds at terminals

RoHS COMPLIANT

DO-214AC (SMA)

Mechanical Date

- **Case:** JEDEC DO-214AC molded plastic body over glass passivated chip
- **Terminals:** Solder plated, solderable per JESD22-B102
- **Polarity:** Laser band denotes cathode end

Major Ratings and Characteristics

$I_{F(AV)}$	**1.0 A**
V_{RRM}	**50 V to 1000 V**
I_{FSM}	**30 A**
t_{rr}	**50 nS , 75 nS**
V_F	**1.0 V , 1.3 V , 1.7 V**
T_j **max.**	**150 °C**

Maximum Ratings & Thermal Characteristics

(T_A = 25 °C unless otherwise noted)

Items	Symbol	US1A	US1B	US1D	US1G	US1J	US1K	US1M	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current	$I_{F(AV)}$	1.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30							A
Thermal resistance from junction to lead (1)	$R_{\theta JL}$	35							℃/ W
Operating junction and storage temperature range	T_J , T_{STG}	–55 to +150							℃

Note 1: Mounted on P.C.B. with 0.28 x 0.28” (7.0 x 7.0mm) copper pad areas.

Electrical Characteristics (T_A = 25 °C unless otherwise noted)

Items	Test conditions		Symbol	US1A~US1D	US1G	US1J~US1M	UNIT
Instantaneous forward voltage	I_F=1.0 A(2)		V_F	1.0	1.3	1.7	V
Reverse current	V_R=V_{DC}	T_A=25℃	I_R	5			μA
		T_A=100℃		50			
Reverse recovery time	I_F = 0.5 A , I_R = 1.0 A , I_{rr} = 0.25 A		t_{rr}	50		75	nS
Typical junction capacitance	4.0 V ,1MHz		C_J	15		10	pF

Note 2: Pulse test:300μs pulse width,1% duty cycle.

Characteristic Curves (T_A=25 ℃ unless otherwise noted)

Fig. 1 Forward Current Derating Curve

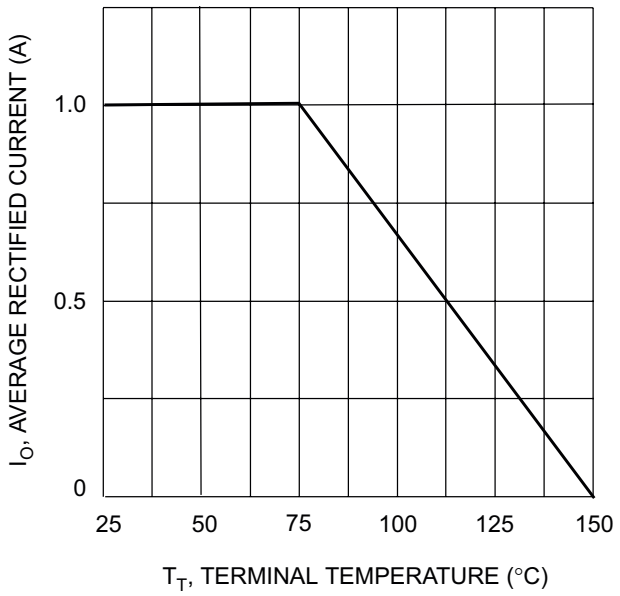


Fig. 2 Typical Forward Characteristics

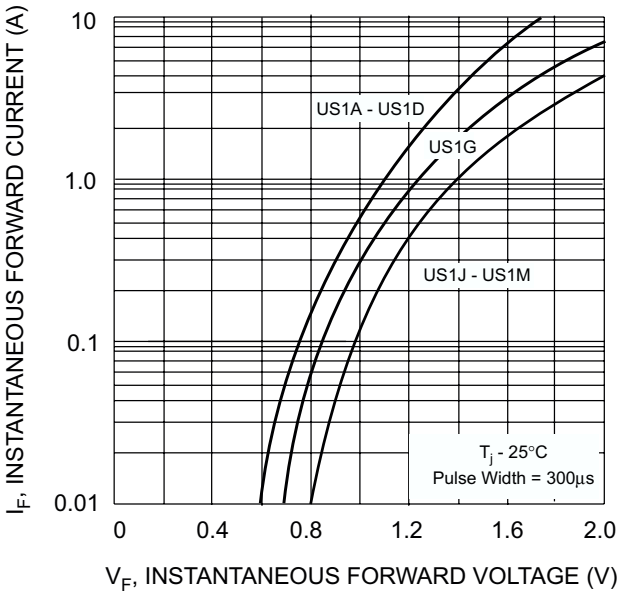


Fig. 3 Forward Surge Current Derating Curve

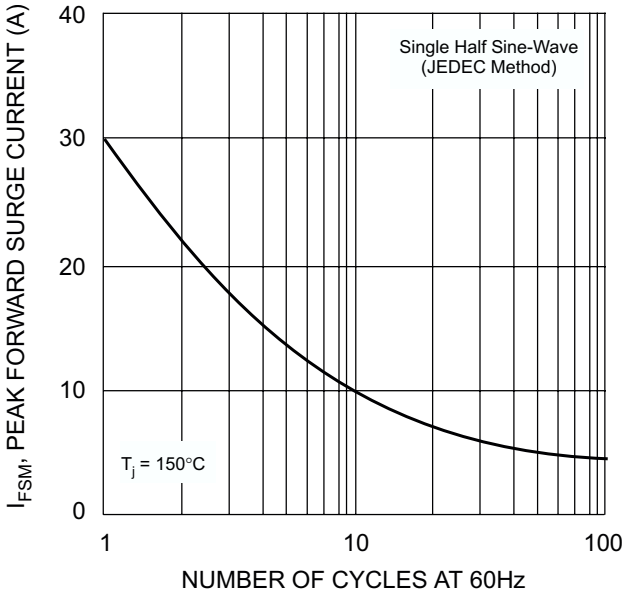
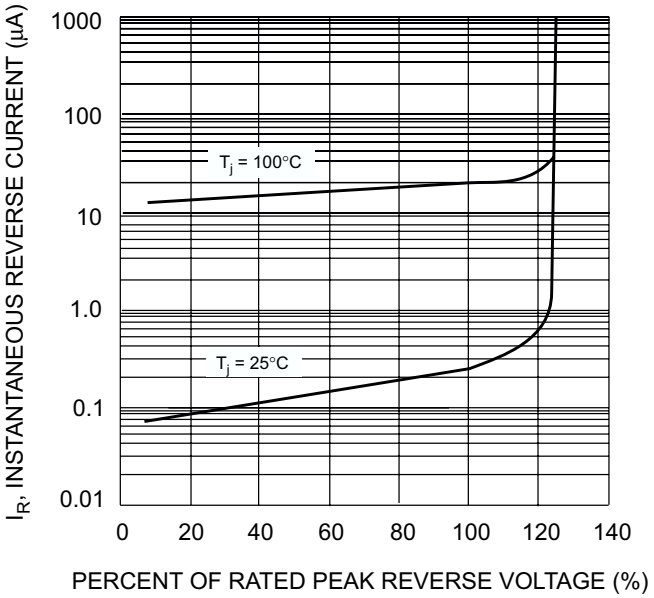
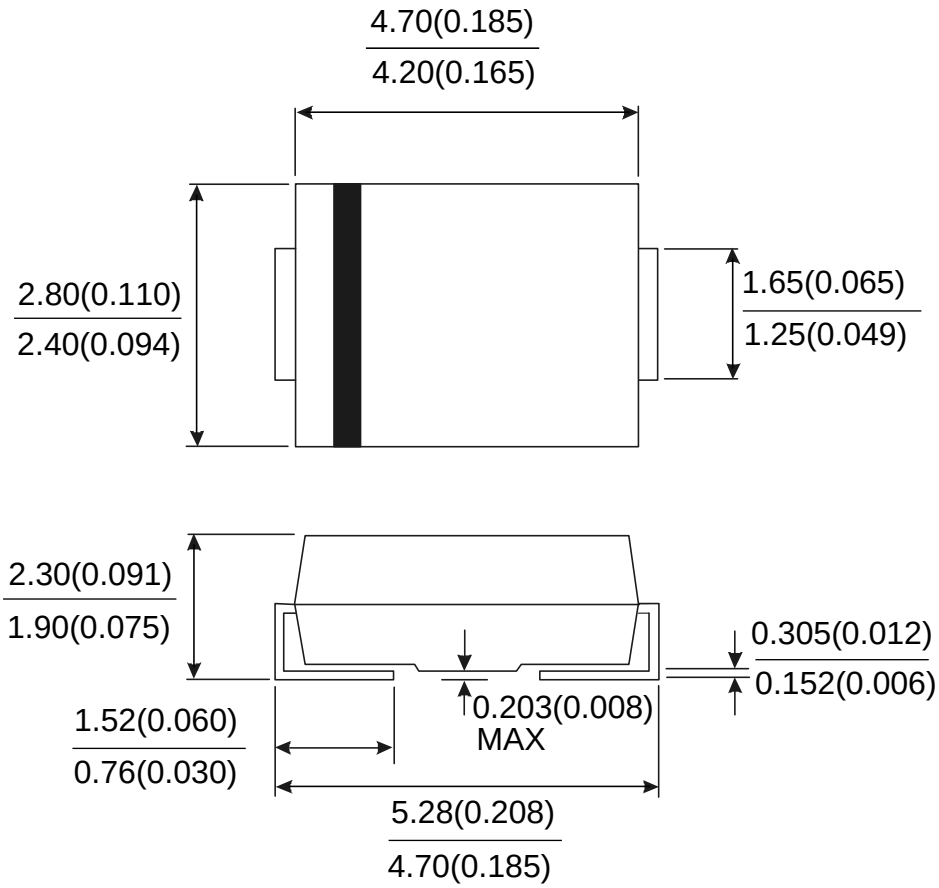


Fig. 4 Typical Reverse Characteristics



Package Outline

SMA



Notice

- Product is intended for use in general electronics applications.
- Product should be worked less than the ratings; if exceeded, may cause permanent damage. or introduce latent failure mechanisms.
- The absolute maximum ratings are rated values and must not be exceeded during operation. The following are the general derating methods you design a circuit with a device.

  $I_{F(AV)}$: We recommend that the worst case current be no greater than 80% .

  T_J : Derate this rating when using a device in order to ensure high reliability. We recommend that the device be used at a T_J of below 125°C.