US2A-US2M

Surface Mount Ultra Fast 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
- Component in accordance to
  RoHS 2002/95/1 and WEEE 2002/96/EC

SMB (DO – 214AA)

Mechanical Date

- **Case:** JEDEC DO-214AA molded plastic body over glass passivated chip
- **Terminals:** Solder plated, solderable per J-STD-002B and JESD22-B102D
- **Polarity:** Laser band denotes cathode end

Major Ratings and Characteristics

$I_{F(AV)}$	**2.0 A**
V_{RRM}	**50 V to 1000 V**
I_{FSM}	**50 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	US2A	US2B	US2D	US2G	US2J	US2K	US2M	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	$I_{F(AV)}$	2.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50							A
Thermal resistance from junction to lead(1)	$R_{\theta JL}$	25							℃/ 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	US2A~US2D	US2G	US2J~US2M	UNIT
Instantaneous forward voltage	I_F=2.0 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			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

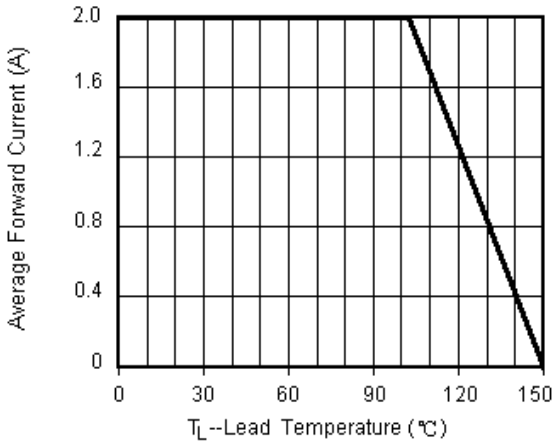


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

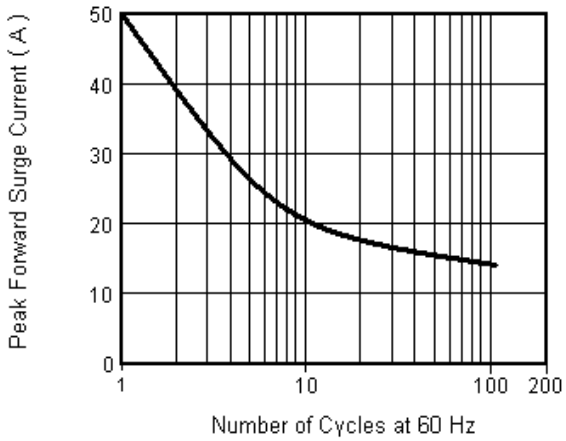


Fig.3 Typical Instantaneous Forward Characteristics

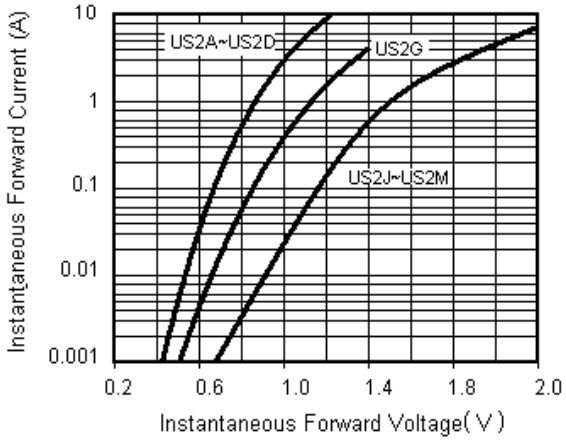
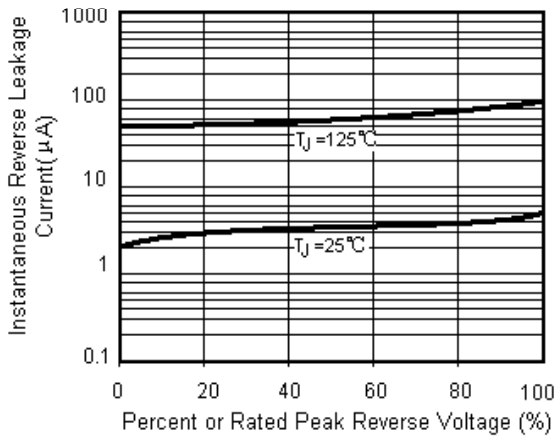
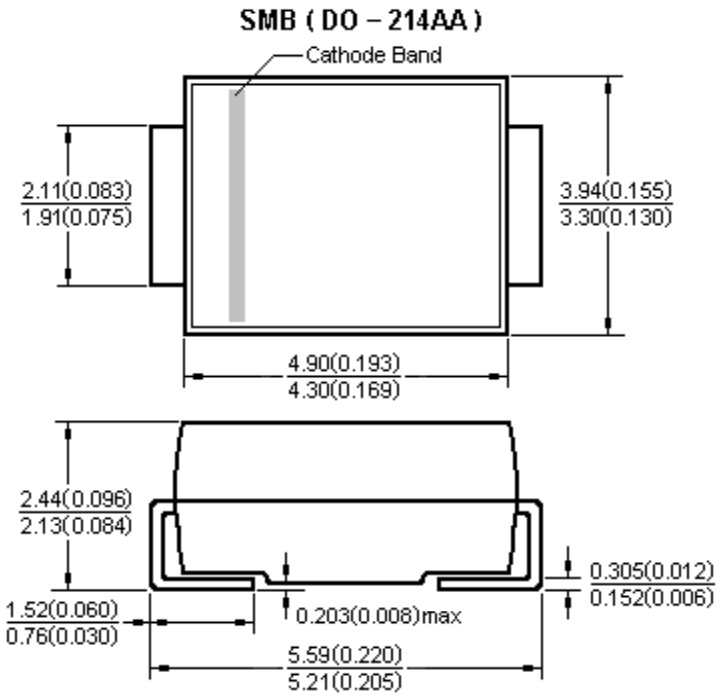


Fig.4 Typical Reverse Leakage Characteristics



Package Outline



Dimensions in millimeters and (inches)

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% .

  I_{FSM} : This rating specifies the non-repetitive peak current. This is only applied for an abnormal operation, which the general during the lifespan of the device.

  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.