



### 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°C/10 seconds at terminals
- Component in accordance to  
RoHS 2002/95/1 and WEEE 2002/96/EC



### Mechanical Date

- **Case:** JEDEC MSMA 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
$t_{rr}$	50nS, 75nS
$V_F$	1.0 V, 1.3 V, 1.7 V
$T_j \text{ max.}$	150 °C

### Maximum Ratings & Thermal Characteristics

( $T_A = 25\text{ °C}$  unless otherwise noted)

Items	Symbol	MAHE 2A	MAHE 2B	MAHE 2D	MAHE 2G	MAHE 2J	MAHE 2K	MAHE 2M	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 <sup>(1)</sup>	$R_{\theta JL}$	35							°C/W
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150							°C

Note 1: Mounted on P.C.B. with 0.2 x 0.2" (5.0 x 5.0mm) copper pad areas.

### Electrical Characteristics

( $T_A = 25\text{ °C}$  unless otherwise noted)

Items	Test conditions	Symbol	MAHE2A~MAHE2D	MAHE2G	MAHE2J~MAHE2M	UNIT
Instantaneous forward voltage	$I_F = 2.0A^{(2)}$	$V_F$	1.0	1.3	1.7	V
Reverse current	$V_R = V_{DC}$ $T_J = 25\text{ °C}$ $T_J = 125\text{ °C}$	$I_R$	5 100			μA
Reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{tr} = 0.25\text{ A}$	$t_{rr}$	50		75	nS
Typical junction capacitance	4.0V, 1.0MHz	$C_J$	20		15	pF

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



# MAHE2A~MAHE2M

## Surface Mount Ultra Fast Rectifiers

Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Fig.1 Forward Current Derating Curve

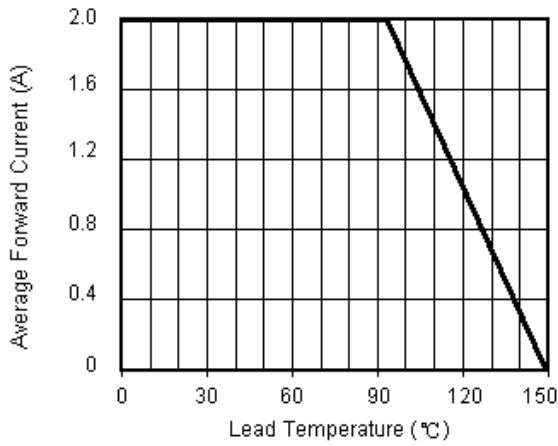


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

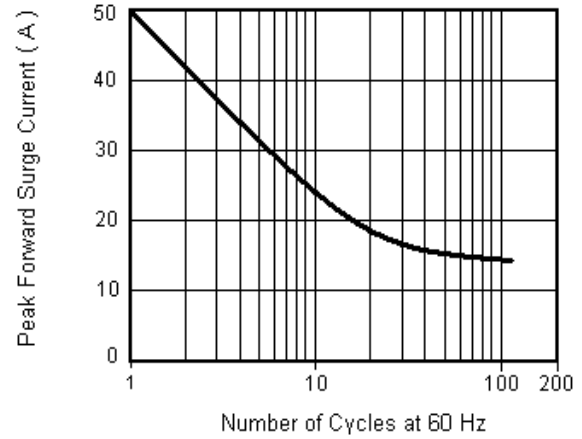


Fig.3 Typical Instantaneous Forward Characteristics

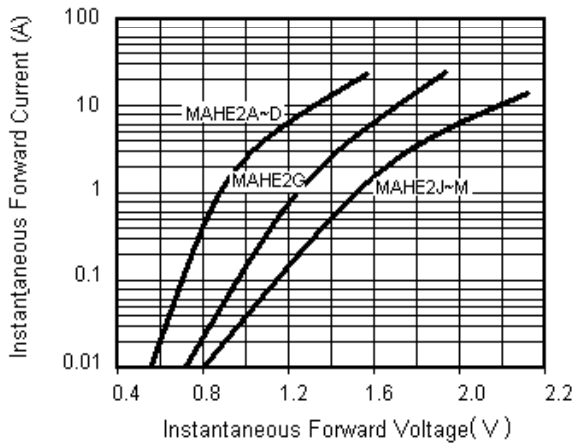


Fig.4 Typical Reverse Leakage Characteristics

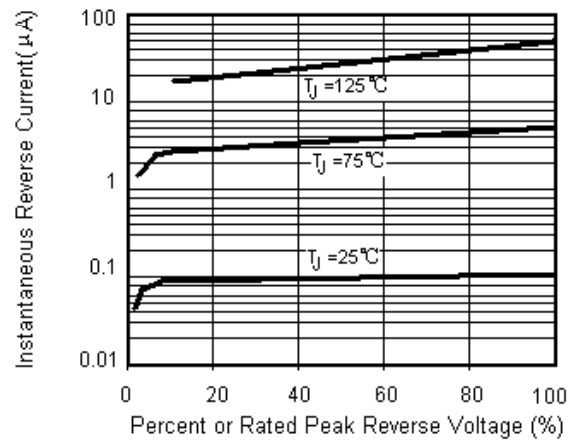
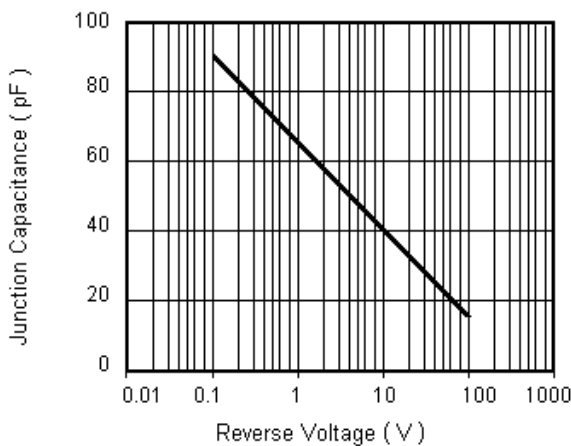
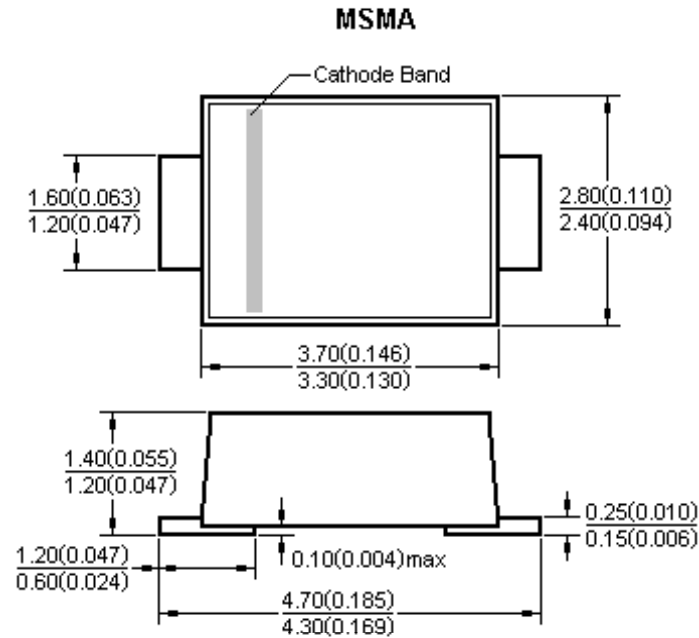


Fig.5 Typical Junction Capacitance





### 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.

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