

# JME016-16/18/20

## Description:

- 1) Chip: double mesa SCRs of reverse blocking high-voltage
- 2) Chip area: 4.5mm×4.5mm (corner gate thyristor)
- 3) Technology: mesa glass passivation technology, multilayer metallization technology and non-void welding by vacuum welding technology



## Typical Application:

Reactive power compensation, solid state relay, power module, etc.

## Absolute Maximum Ratings (Packaged into modules, unless otherwise specified, $T_C=25^\circ\text{C}$ )

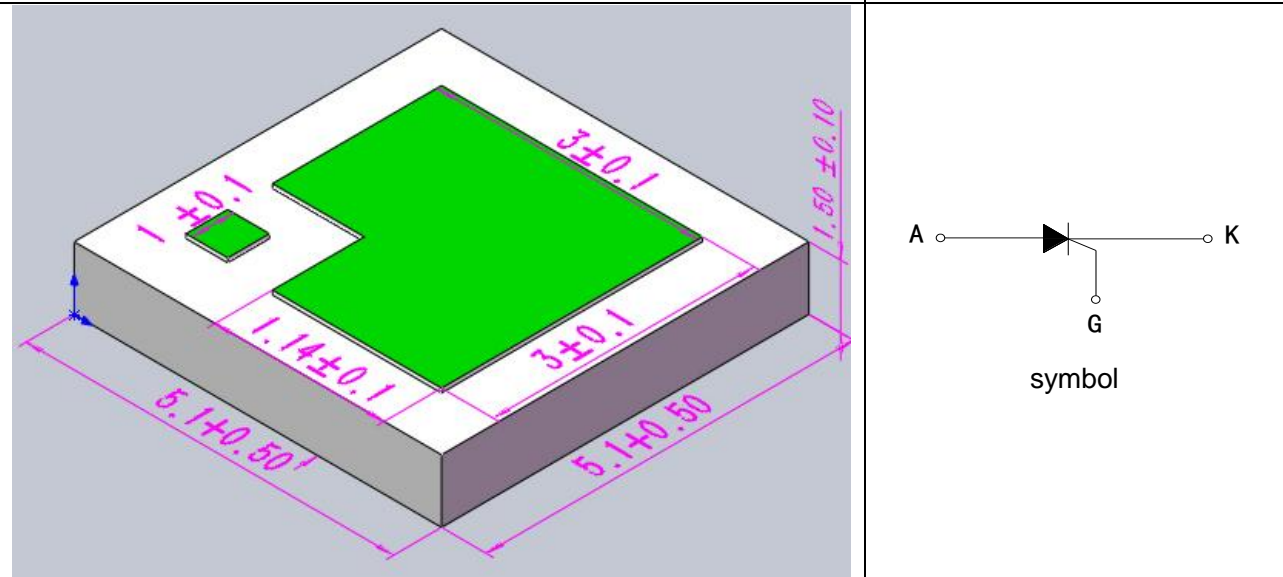
Parameter	Test Conditions	Symbol	Values	Unit
Operating junction temperature range		$T_j$	-40-125	$^\circ\text{C}$
Repetitive peak off-state voltage	$T_j=25^\circ\text{C}$	$V_{\text{DRM}}$	1600/1800/2000	V
Repetitive peak reverse voltage	$T_j=25^\circ\text{C}$	$V_{\text{RRM}}$	1600/1800/2000	V
Average on-state current	$T_C=80^\circ\text{C}$	$I_{\text{T(AV)}}$	16	A
Peak on-state surge current	$t_p=10\text{ms}$	$I_{\text{TSM}}$	190	A
$I^2t$ value for fusing	$t_p=10\text{ms}$	$I^2t$	180	$\text{A}^2\text{s}$
Critical rate of rise of on-state current	$V_D=2/3V_{\text{DRM}}$ $t_p=200\mu\text{s}$ $I_G=0.3\text{A}$ $T_j=125^\circ\text{C}$ $dI_G/dt=0.3\text{A}/\mu\text{s}$	$dI/dt$	150	$\text{A}/\mu\text{s}$

## Electrical Characteristics (Packaged into modules, unless otherwise specified, $T_C=25^\circ\text{C}$ )

Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=48\text{A}$ $t_p=380\mu\text{s}$	$V_{\text{TM}}$	$\leq 1.8$	V
Repetitive peak off-state current	$V_D=V_{\text{DRM}}$ $T_C=25^\circ\text{C}$	$I_{\text{DRM1}}$	$\leq 10$	$\mu\text{A}$
	$T_C=125^\circ\text{C}$	$I_{\text{DRM2}}$	$\leq 3$	$\text{mA}$
Repetitive peak reverse current	$V_R=V_{\text{RRM}}$ $T_C=25^\circ\text{C}$	$I_{\text{RRM1}}$	$\leq 10$	$\mu\text{A}$
	$T_C=125^\circ\text{C}$	$I_{\text{RRM2}}$	$\leq 3$	$\text{mA}$
Triggering gate current	$V_D=12\text{V}$ $R_L=30\Omega$	$I_{\text{GT}}$	20-50	$\text{mA}$
Latching current	$I_G=1.2 I_{\text{GT}}$	$I_L$	$\leq 80$	$\text{mA}$
Holding current	$I_T=1\text{A}$	$I_H$	$\leq 70$	$\text{mA}$
Triggering gate voltage	$V_D=12\text{V}$ $R_L=30\Omega$	$V_{\text{GT}}$	$\leq 1.5$	V

Non triggering gate voltage	$V_D = V_{DRM} T_j = 125^\circ\text{C}$	$V_{GD}$	$\geq 0.25$	V
Critical rate of rise of voltage	$V_D = 2/3 V_{DRM} T_j = 125^\circ\text{C}$ Gate Open	dV/dt	$\geq 1000$	V/ $\mu\text{s}$

### Mechanical Characteristics

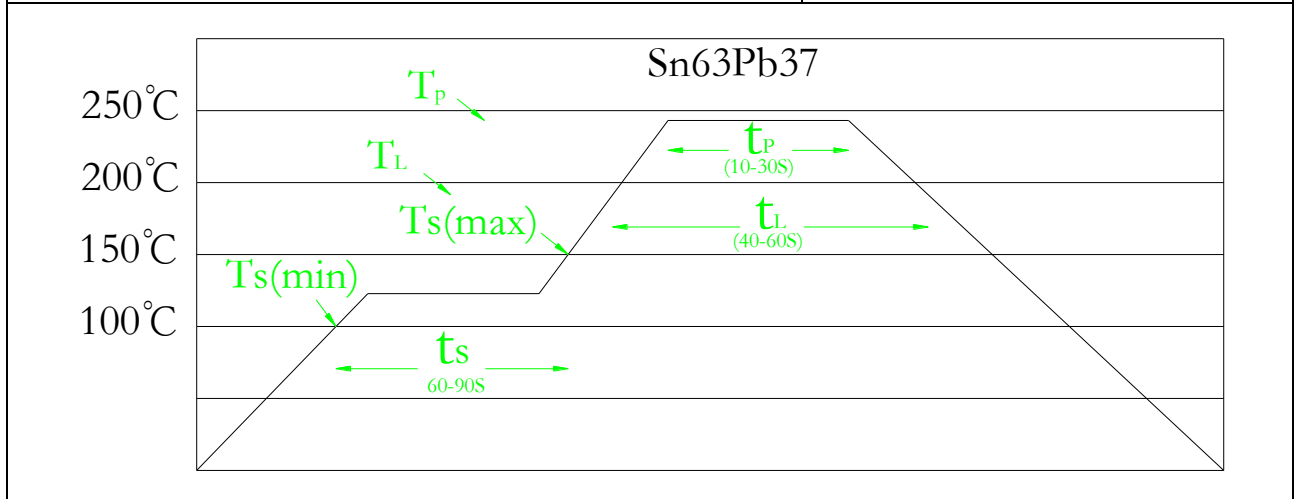
Module size	5.1 mm×5.1mm
Module thickness	1.6 mm
Welding area of cathode electrode	3mm×3mm×1.14mm
Welding area of control electrode	1×1mm
 <p>The image shows a 3D isometric view of the module with dimensions: 5.1±0.50 mm (length), 5.1±0.50 mm (width), and 1.50±0.10 mm (height). The cathode electrode is 3±0.1 mm by 3±0.1 mm with a thickness of 1.14±0.1 mm. The control electrode is 1±0.1 mm by 1±0.1 mm. To the right is the circuit symbol for an N-channel MOSFET with terminals A (Anode), K (Cathode), and G (Gate), labeled 'symbol'.</p>	

### Working Conditions

- 1) No severe mechanical shock as impact and drop off in the process of transportation, storage and working of product.
- 2) Storage conditions
  - Temperature: 5~40°C
  - Relative humidity: ≤45%
  - Storage time: 3 days for the open package; 3 months for the closed package
- 3) Welding conditions
  - Recommended solder component: Sn63Sb37 (or lead-free solder of liquid quadrant less than 240°C)
  - Recommended soldering conditions: shown in Table 1
- 4) Welding in the gate spot is recommended to be completed one-time by using fixture. If it is necessary to use a soldering iron, the temperature of soldering iron is controlled within 280°C and time is controlled within 20s.

**Table 1**

Sn63Sb37 Soldering conditions		
Average heating rate		3°C/s (Max)
Preheating activation	Low limit of temperature $T_s(\text{Min})$	100°C
	Upper limit of temperature $T_s(\text{Max})$	150°C
	Time (min ~ max) $t_s$	60 ~ 90s
Reflow zone	Melting point temperature $T_L$	183°C (Sn63Sb37)
	Peak temperature $T_P$	240°C (+0/-5°C)
	Reflow time (Peak temperature $\pm 5^\circ\text{C}$ ) $t_p$	10~30s
	Melting time $T_L$	40~60s
Maximum cooling rate		3.5°C/s
Recommended process time		300 ~ 360s



**Ordering Information**

<p><b>J</b></p> <p>JieJie Microelectronics Co.,Ltd</p>	<p><b>M</b></p> <p>Module of series</p>	<p><b>E</b></p> <p>E:Edge and corner gate</p>	<p><b>016</b></p> <p><math>I_{T(AV)}=16A</math></p>	<p><b>-16</b></p> <p>16: <math>V_{DRM}/V_{RRM} \geq 1600V</math>            18: <math>V_{DRM}/V_{RRM} \geq 1800V</math>            20: <math>V_{DRM}/V_{RRM} \geq 2000V</math></p>
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