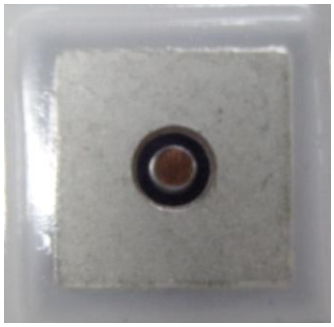
JMC175-16/18/20

Description:

1) Chip: double mesa SCRs of reverse blocking high-voltage
2) Chip area: 15.2mm×15.2mm (central 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℃)

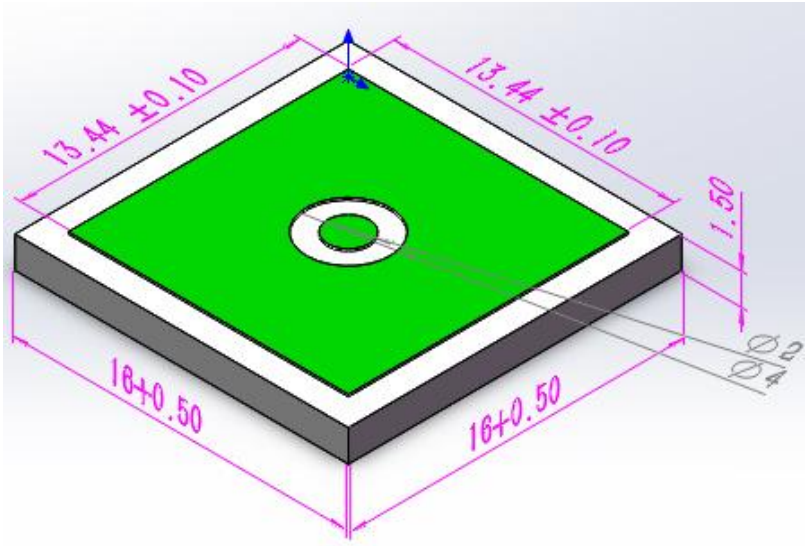
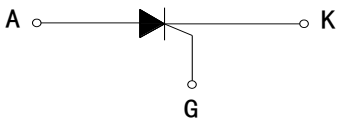
Parameter	Test Conditions	Symbol	Values	Unit
Operating junction temperature range		T_j	-40-125	℃
Repetitive peak off-state voltage	T_j=25℃	V_{DRM}	1600/1800/2000	V
Repetitive peak reverse voltage	T_j=25℃	V_{RRM}	1600/1800/2000	V
Average on-state current	T_C=80℃	$I_{T(AV)}$	175	A
Peak on-state surge current	tp=10ms	I_{TSM}	4000	A
I^2t value for fusing	tp=10ms	I^2t	80000	A^2s
Critical rate of rise of on-state current	V_D=2/3V_{DRM} tp=200μs I_G=0.3A T_j=125℃ dI_G/dt=0.3A/μs	dI/dt	150	A/μs

Electrical Characteristics (Packaged into modules, unless otherwise specified, T_C=25℃)

Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	I_T=550A tp=380μs	V_{TM}	≤1.8	V
Repetitive peak off-state current	V_D=V_{DRM} T_C=25℃ T_C=125℃	 I_{DRM1} I_{DRM2}	 ≤100 ≤30	 μA mA
Repetitive peak reverse current	V_R=V_{RRM} T_C=25℃ T_C=125℃	 I_{RRM1} I_{RRM2}	 ≤100 ≤30	 μA mA
Triggering gate current	V_D=12V R_L=30Ω	I_{GT}	20-150	mA
Latching current	I_G=1.2 I_{GT}	I_L	≤300	mA
Holding current	I_T=1A	I_H	≤250	mA
Triggering gate voltage	V_D=12V R_L=30Ω	V_{GT}	≤2	V

Non triggering gate voltage	V_D=V_{DRM} T_j=125℃	V_{GD}	≥0.25	V
Critical rate of rise of voltage	V_D=2/3V_{DRM} T_j=125℃ Gate Open	dV/dt	≥1000	V/μs

Mechanical Characteristics

Module size	16 mm×16 mm
Module thickness	1.6 mm
Welding area of cathode electrode	13.44 mm×13.44 mm
Welding area of control electrode	φ 2.0mm
	 symbol

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℃

Relative humidity: ≤45%

Storage time: 3 days for the open package; 3 months for the closed package

3) Welding conditions

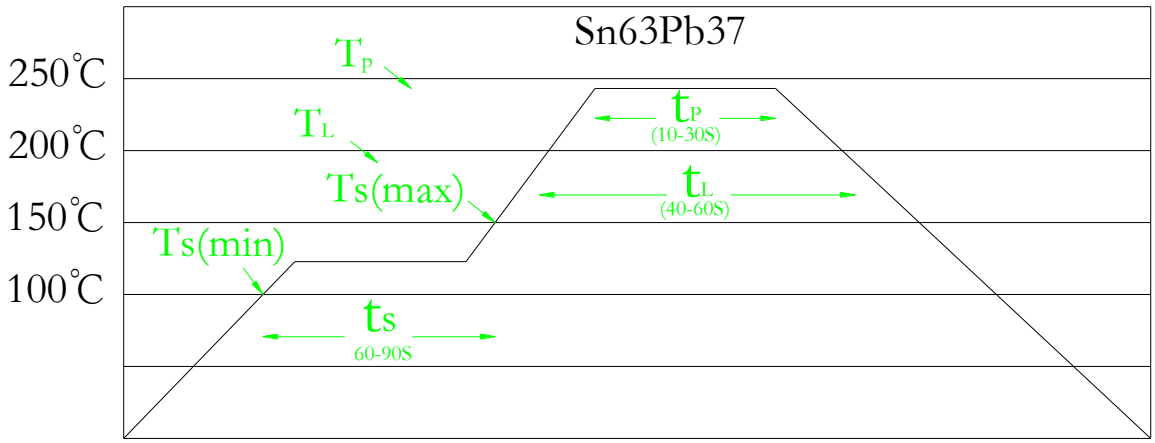
Recommended solder component: Sn63Sb37 (or lead-free solder of liquid quadrant less than 240℃)

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℃ and time is controlled within 20s.

Table 1

Sn63Sb37 Soldering conditions		
Average heating rate		3℃/s (Max)
Preheating activation	Low limit of temperature T_S(Min)	100℃
	Upper limit of temperature T_S(Max)	150℃
	Time (min ~ max) t_S	60 ~ 90s
Reflow zone	Melting point temperature T_L	183℃ (Sn63Sb37)
	Peak temperature T_P	240℃ (+0/-5℃)
	Reflow time t_p (Peak temperature ±5℃)	10～30s
	Melting time T_L	40～60s
Maximum cooling rate		3.5℃/s
Recommended process time		300 ~ 360s



Ordering Information