

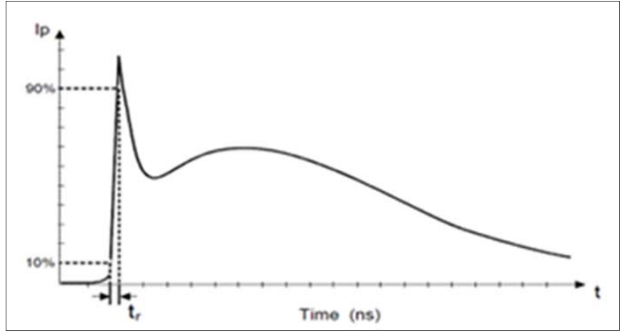


COMMON MODE FILTER CHOKE-*JACM 3225V SERIES*

Reliability and Test Condition

Item	Performance	Test Condition
Electrical Performance Test		
L	Refer to standard electrical characteristics list.	Agilent-4291A+ Agilent -16197A
DCR		Agilent-4338B
I.R.		Agilent-4339
Operating Temperature	-55°C~+150°C (Including self - temperature rise)	
Storage Temperature	-55°C~+150°C (on board)	
Temperature Rise Test	Rated Current < 1A ΔT 20°C Max Rated Current ≥ 1A ΔT 40°C Max	1.Applied the allowed DC current. 2.Temperature measured by digital surface thermometer
Reliability Test		
High Temperature Exposure(Storage) AEC-Q200	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : 150±2°C Duration : 1000hrs Min. Measured at room temperature after placing for 24±2 hrs
Temperature Cycling AEC-Q200		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Condition for 1 cycle Step1 : -55±2°C 30min Min. Step2 : 150±2°C transition time 1min MAX. Step3 : 150±2°C 30min Min. Step4 : Low temp. transition time 1min MAX. Number of cycles : 1000 Measured at room temperature after placing for 24±2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) 1.Baked at50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2.Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3.Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs,keep at 25°C for 2hrs then keep at -10°C for 3hrs 4.Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Biased Humidity (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020DClassification Reflow Profiles) Humidity : 85±3% R.H, Temperature : 85°C±2°C Duration : 1000hrs Min with 100% rated current. Measured at room temperature after placing for 24±2 hrs
High Temperature Operational Life (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : 150±2°C Duration : 1000hrs Min. with 100% rated current. Measured at room temperature after placing for 24±2 hrs

Reliability and Test Condition

Item	Performance	Test Condition															
Reliability Test																	
External Visual	Appearance : No damage	Inspect device construction, marking and workmanship. Electrical Test not required.															
Physical Dimension	According to the product specification size measurement	According to the product specification size measurement															
Resistance to Solvents	Appearance : No damage.	Add aqueous wash chemical - OKEM clean or equivalent.															
Mechanical Shock	Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	<table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </table> shocks in each direction along 3 perpendicular axes.	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	100	6	Half-sine	12.3	Lead	100	6	Half-sine	12.3
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SMD	100	6	Half-sine	12.3													
Lead	100	6	Half-sine	12.3													
Vibration		IPC/JEDEC J-STD-020D Classification Reflow Profiles Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minute Equipment : Vibration checker Total Amplitude:1.52mm $\pm 10\%$ Testing Time : 12 hours (20 minutes, 12 cycles each of 3 orientations) °															
Resistance to Soldering Heat	Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Test condition : <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260± 5 (solder temp)</td> <td>10± 1</td> <td>25mm/s ± 6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ± 5 (solder temp)	10 ± 1	25mm/s ± 6 mm/s	1							
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Thermal shock (AEC-Q200)		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Condition for 1 cycle Step1 : -55 $\pm 2^\circ\text{C}$ 15 ± 1 min Step2 : 150 $\pm 2^\circ\text{C}$ within 20Sec. Step3 : 150 $\pm 2^\circ\text{C}$ 15 ± 1 min Number of cycles : 300 Measured at room temperature after placing for 24 ± 2 hrs															
ESD	Appearance : No damage.																
Solderability	More than 95% of the terminal electrode should be covered with solder °	Steam Aging: 16 hours \pm 15 min Preheat: 150 $^\circ\text{C}$, 60sec. Solder: Sn96.5% Ag3% Cu0. 5% Temperature: 245 $\pm 5^\circ\text{C}$ ° Flux for lead free: Rosin. 9.5% ° Dip time: 4 ± 1 sec. Depth: completely cover the termination															

Reliability and Test Condition

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Reliability Test		
Electrical Characterization	Refer Specification for Approval	Summary to show Min, Max, Mean and Standard deviation
Flammability	Electrical Test not required	V-0 or V-1 are acceptable.
Board Flex	Appearance : No damage	<p>Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Place the 100mm X 40mm board into a fixture similar to the one shown in below Figure with the component facing down.</p> <p>The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum. The duration of the applied forces shall be 60 (+ 5) sec. The force is to be applied only once to the board.</p>
Terminal Strength(SMD)	Appearance : No damage	<p>Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.</p>

Reliability and Test Condition

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Reliability Test		
Soldering	Mildly activated rosin fluxes are preferred. JANTEK terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.	
Solder re-flow:	Recommended temperature profiles for re-flow soldering in Figure 1.	
Soldering Iron(Figure 2):	Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended. Note : <ul style="list-style-type: none"> • Preheat circuit and products to 150°C • Never contact the ceramic with the iron tip • Use a 20 watt soldering iron with tip diameter of 1.0mm • 350°C tip temperature (max) • 1.0mm tip diameter (max) • Limit soldering time to 4~5 sec 	

Reflow Soldering

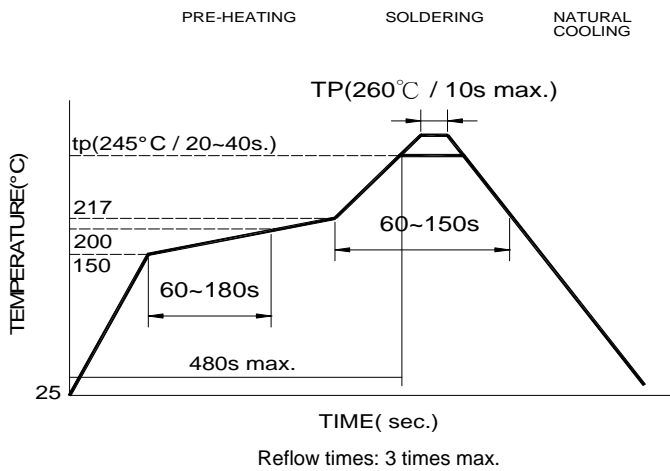


Fig.1

Iron Soldering

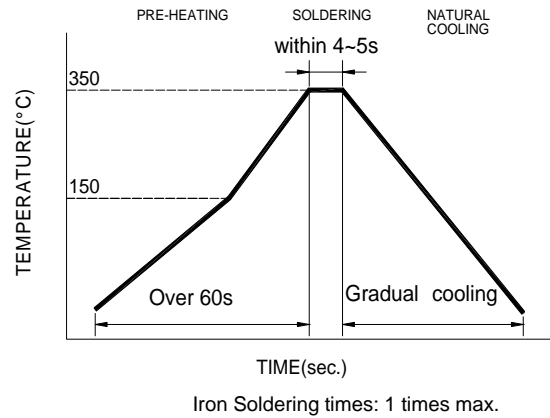


Fig.2