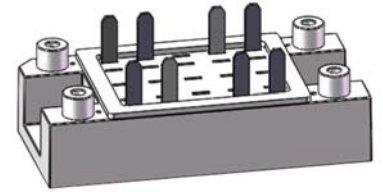


JS120K3

Description

- 1) A package of series of two diodes.
- 2) Heat transfer through alumina ceramic and metal substrate.
- 3) Welding by vacuum welding technology, which provide high reliability.



Typical Application

AC converter, inverter and DC motor.

V1-A-Pack

Absolute Maximum Ratings (Packaged into V1-A-Pack, unless otherwise specified, $T_{CASE}=25^{\circ}C$)

Parameter	Test Conditions	Symbol	Values			Unit
			16	18	20	
Operating junction temperature range		T_j	-40-150			$^{\circ}C$
Storage temperature range		T_{stg}	-40-125			$^{\circ}C$
Repetitive peak reverse voltage	$T_j=25^{\circ}C$	V_{RRM}	1600	1800	2000	V
Non-repetitive peak reverse voltage	$T_j=25^{\circ}C$	V_{RSM}	1700	1900	2100	V
Average on-state current	$T_C=100^{\circ}C$	$I_{F(AV)}$	120			A
Peak on-state surge current	$T_j=25^{\circ}C, t_p=10ms,$	I_{FSM}	3360			A
I^2t value for fusing	$\sin 180^{\circ}$	I^2t	56400			A^2s
Insulation voltage	A.C 50Hz(1s/1min)	V_{ISO}	3600/3000			V

Electrical Characteristics (Packaged into V1-A-Pack, unless otherwise specified, $T_{CASE}=25^{\circ}C$)

Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_F=360A, t_p=380\mu s$	V_F	≤ 1.6	V
Threshold voltage	$T_j=150^{\circ}C$	V_{TO}	≤ 0.85	V
Dynamic resistance	$T_j=150^{\circ}C$	R_d	≤ 1.5	$m\Omega$
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_j=25^{\circ}C$	I_{RRM1}	≤ 100	μA
	$T_j=150^{\circ}C$	I_{RRM2}	≤ 40	mA
Thermal resistance	Junction to case	$R_{th(j-c)}$	0.29	$^{\circ}C/W$
	Case to heatsink	$R_{th(c-s)}$	0.12	

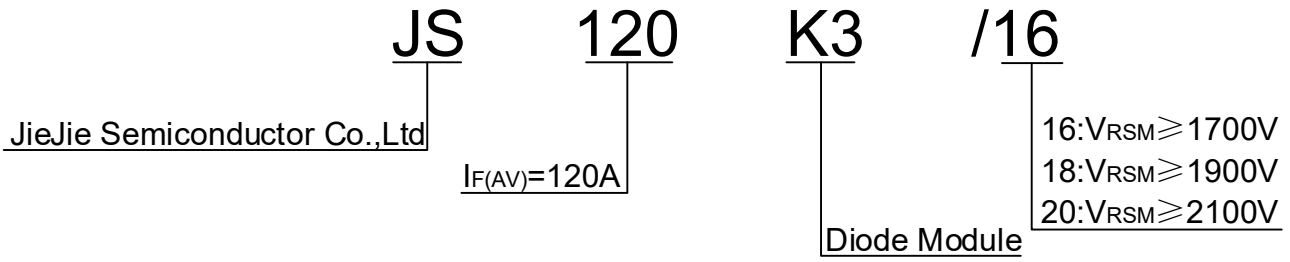
Mechanical Characteristics

Module size	63mm×31.6mm																																																																																																																																																																																																																					
Module height	21.6mm																																																																																																																																																																																																																					
	<table border="1"> <thead> <tr> <th rowspan="3">Ref</th> <th colspan="6">Dimensions</th> </tr> <tr> <th colspan="3">Millimeters</th> <th colspan="3">Inches</th> </tr> <tr> <th>Min</th> <th>Typ</th> <th>Max</th> <th>Min</th> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr><td>A</td><td>2.85</td><td>3</td><td>3.15</td><td>0.112</td><td>0.118</td><td>0.124</td></tr> <tr><td>B</td><td>2.3</td><td>2.5</td><td>2.7</td><td>0.091</td><td>0.098</td><td>0.106</td></tr> <tr><td>C</td><td>1.9</td><td>2.1</td><td>2.3</td><td>0.075</td><td>0.083</td><td>0.091</td></tr> <tr><td>D</td><td></td><td></td><td>6</td><td></td><td></td><td>0.236</td></tr> <tr><td>E</td><td>16.25</td><td>17</td><td>17.75</td><td>0.640</td><td>0.669</td><td>0.699</td></tr> <tr><td>F</td><td>0.55</td><td>0.65</td><td>0.75</td><td>0.022</td><td>0.026</td><td>0.030</td></tr> <tr><td>G</td><td>20.85</td><td>21.6</td><td>22.35</td><td>0.821</td><td>0.850</td><td>0.880</td></tr> <tr><td>H</td><td>30.85</td><td>31.6</td><td>32.35</td><td>1.215</td><td>1.244</td><td>1.274</td></tr> <tr><td>I</td><td>23</td><td>23.5</td><td>24</td><td>0.906</td><td>0.925</td><td>0.945</td></tr> <tr><td>J</td><td>0.17</td><td>0.67</td><td>1.17</td><td>0.007</td><td>0.026</td><td>0.046</td></tr> <tr><td>K</td><td>10.5</td><td>11</td><td>11.5</td><td>0.413</td><td>0.433</td><td>0.453</td></tr> <tr><td>L</td><td>6.5</td><td>7</td><td>7.5</td><td>0.256</td><td>0.276</td><td>0.295</td></tr> <tr><td>M</td><td>49.5</td><td>50</td><td>50.5</td><td>1.949</td><td>1.969</td><td>1.988</td></tr> <tr><td>N</td><td>51</td><td>51.5</td><td>52</td><td>2.008</td><td>2.028</td><td>2.047</td></tr> <tr><td>O</td><td>62.25</td><td>63</td><td>63.75</td><td>2.451</td><td>2.480</td><td>2.510</td></tr> <tr><td>P</td><td>10.5</td><td>11</td><td>11.5</td><td>0.413</td><td>0.433</td><td>0.453</td></tr> <tr><td>Q</td><td>6.5</td><td>7</td><td>7.5</td><td>0.256</td><td>0.276</td><td>0.295</td></tr> <tr><td>R</td><td>5.6</td><td>6.1</td><td>6.6</td><td>0.220</td><td>0.240</td><td>0.260</td></tr> <tr><td>S</td><td>2.55</td><td>2.75</td><td>2.95</td><td>0.100</td><td>0.108</td><td>0.116</td></tr> <tr><td>T</td><td>0.3</td><td>0.5</td><td>0.7</td><td>0.012</td><td>0.020</td><td>0.028</td></tr> <tr><td>U</td><td>0.17</td><td>0.67</td><td>1.17</td><td>0.007</td><td>0.026</td><td>0.046</td></tr> <tr><td>V</td><td>10.5</td><td>11</td><td>11.5</td><td>0.413</td><td>0.433</td><td>0.453</td></tr> <tr><td>W</td><td>6.5</td><td>7</td><td>7.5</td><td>0.256</td><td>0.276</td><td>0.295</td></tr> <tr><td>X</td><td>6.5</td><td>7</td><td>7.5</td><td>0.256</td><td>0.276</td><td>0.295</td></tr> <tr><td>Y</td><td>10.5</td><td>11</td><td>11.5</td><td>0.413</td><td>0.433</td><td>0.453</td></tr> <tr><td>Z1</td><td>5.6</td><td>6.1</td><td>6.6</td><td>0.220</td><td>0.240</td><td>0.260</td></tr> <tr><td>Z2</td><td>2.5</td><td>3</td><td>3.5</td><td>0.098</td><td>0.118</td><td>0.138</td></tr> </tbody> </table>						Ref	Dimensions						Millimeters			Inches			Min	Typ	Max	Min	Typ	Max	A	2.85	3	3.15	0.112	0.118	0.124	B	2.3	2.5	2.7	0.091	0.098	0.106	C	1.9	2.1	2.3	0.075	0.083	0.091	D			6			0.236	E	16.25	17	17.75	0.640	0.669	0.699	F	0.55	0.65	0.75	0.022	0.026	0.030	G	20.85	21.6	22.35	0.821	0.850	0.880	H	30.85	31.6	32.35	1.215	1.244	1.274	I	23	23.5	24	0.906	0.925	0.945	J	0.17	0.67	1.17	0.007	0.026	0.046	K	10.5	11	11.5	0.413	0.433	0.453	L	6.5	7	7.5	0.256	0.276	0.295	M	49.5	50	50.5	1.949	1.969	1.988	N	51	51.5	52	2.008	2.028	2.047	O	62.25	63	63.75	2.451	2.480	2.510	P	10.5	11	11.5	0.413	0.433	0.453	Q	6.5	7	7.5	0.256	0.276	0.295	R	5.6	6.1	6.6	0.220	0.240	0.260	S	2.55	2.75	2.95	0.100	0.108	0.116	T	0.3	0.5	0.7	0.012	0.020	0.028	U	0.17	0.67	1.17	0.007	0.026	0.046	V	10.5	11	11.5	0.413	0.433	0.453	W	6.5	7	7.5	0.256	0.276	0.295	X	6.5	7	7.5	0.256	0.276	0.295	Y	10.5	11	11.5	0.413	0.433	0.453	Z1	5.6	6.1	6.6	0.220	0.240	0.260	Z2	2.5	3	3.5	0.098	0.118	0.138
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Instructions and Precautions

- 1) There is no severe vibration and shock in operating environment, and there should be no impurity and atmosphere which may corrode metal and damage the insulation in the air-dielectric.
- 2) The operating condition of the product can't out of range of the above parameters.
- 3) When the product is installed on the radiator, the radiator's surface should be confirmed flat, smooth, wipe clean with alcohol, and coated evenly with a layer of thermal grease which thickness is moderate on the contact surface between product and radiator. When the module is fastened on the surface of the radiator, the M5 or M6 screws and spring washers are used and fastened with 5NM torque. After the module is operated 1 hour, all screws must be refastened.
- 4) The connection with the main electrode of module can use copper, welding, socket and so on. The contact surface should be smooth and flat, which make good contact. While the connection with the control electrode of module is installed, attention should be paid to the corresponding connection of each pin. After the completion of the connection, do not plug and pull out the lead of the control electrode freely.

Ordering Information



Performance Curves

FIG.1: Forward characteristics(per diode)

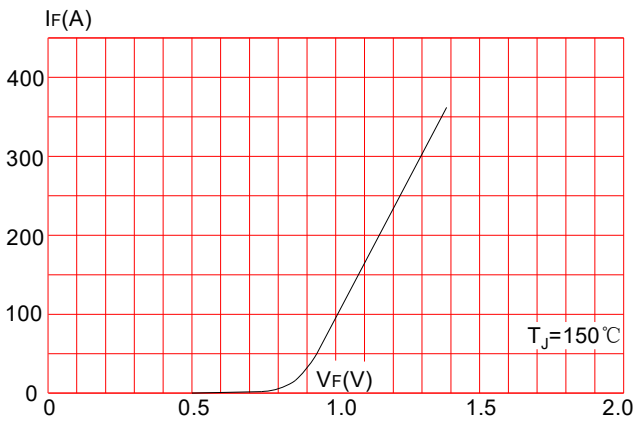


FIG.2: Peak on-state surge current

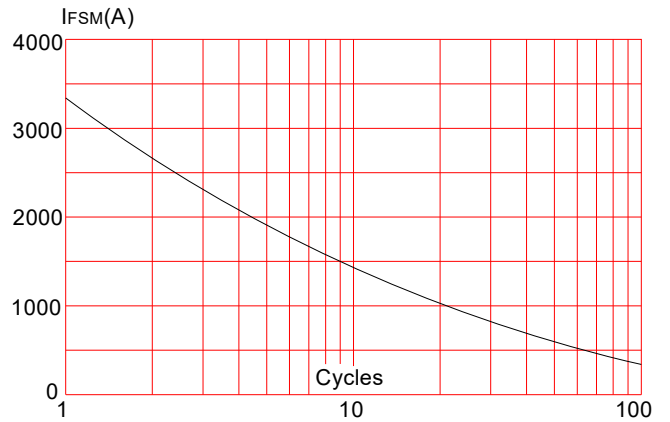


FIG.3: Forward current vs. case temperature

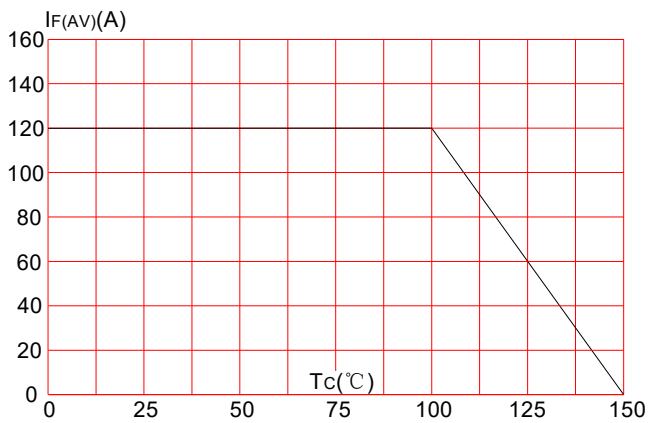
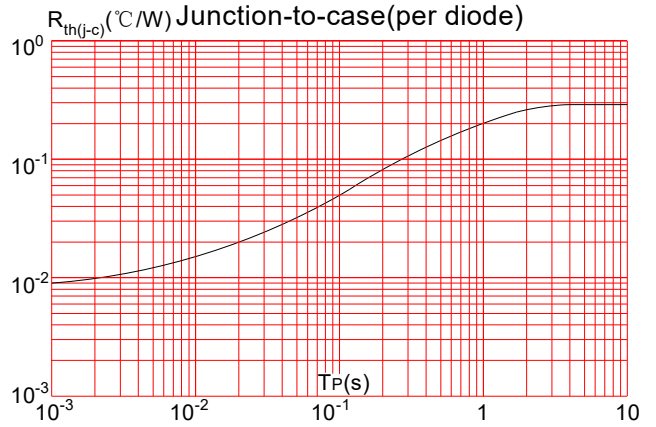


FIG.4: Maximum transient thermal impedance






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