



JMD120K318V1W

Diode Module

Features

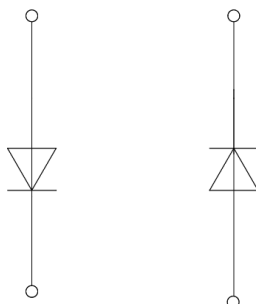
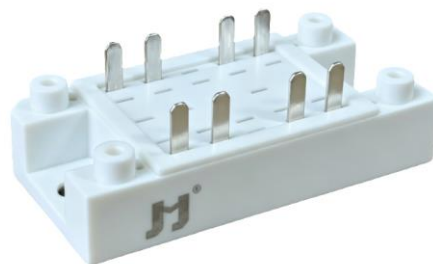
- A package of series of two diodes
- Heat transfer through alumina ceramic and metal substrate
- Welding by vacuum welding technology, which provide high reliability

Product Summary

Parameter	Value	Unit
V_{RRM}	1800	V
$I_{F(AV)}(@ T_C = 100^{\circ}\text{C})$	120	A
$I_{FSM}(@ t_p = 10\text{ms})$	3360	A
$V_F(\text{Max})$	1.60	V

Applications

- AC converter
- Inverter
- DC motor



Absolute Maximum Ratings (@ $T_C = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Values	Unit
Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1800	V
Non-repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RSM}	1900	V
Average forward current	$T_C = 100^{\circ}\text{C}$	$I_{F(AV)}$	120	A
Forward surge current	1/2 cycle, Sine wave, 50Hz	I_{FSM}	3360	A
I^2t value for fusing	$T_{vj} = 25^{\circ}\text{C}$	I^2t	56400	A^2s
RMS isolation voltage	A.C 50Hz(1s/1min)	V_{ISO}	3600/3000	V
Junction temperature range		T_J	-40 ~ +150	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 ~ +125	$^{\circ}\text{C}$

**Electrical Characteristics (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)**

Parameter	Conditions	Symbol	Values			Unit
			Min.	Typ.	Max.	
Peak forward voltage	$I_F=360\text{A}$, $t_p=380\mu\text{s}$	V_F			1.60	V
Reverse leakage current	$V_R = V_{RRM}$, $T_{vj} = 25^\circ\text{C}$	I_{RRM}			100	μA
	$V_R = V_{RRM}$, $T_{vj} = 150^\circ\text{C}$				40	mA
Threshold voltage	$T_{vj} = 150^\circ\text{C}$, for power loss calculation only	V_{TO}			0.85	V
Dynamic resistance		r_T			1.5	$\text{m}\Omega$

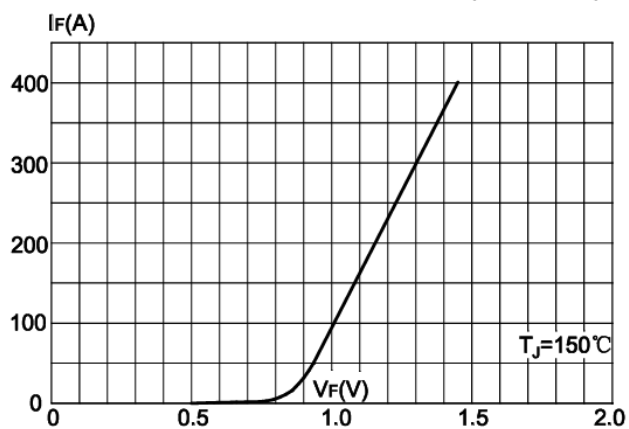
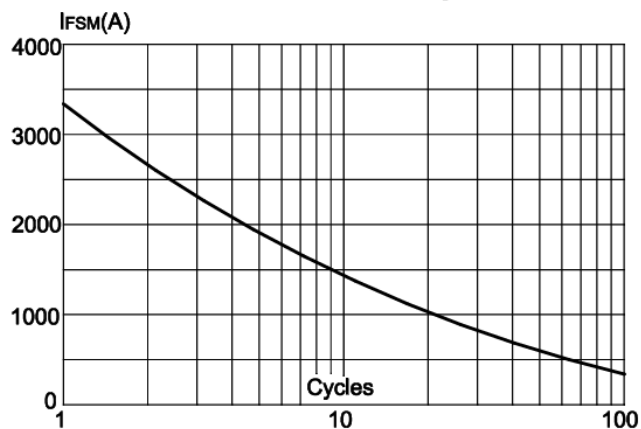
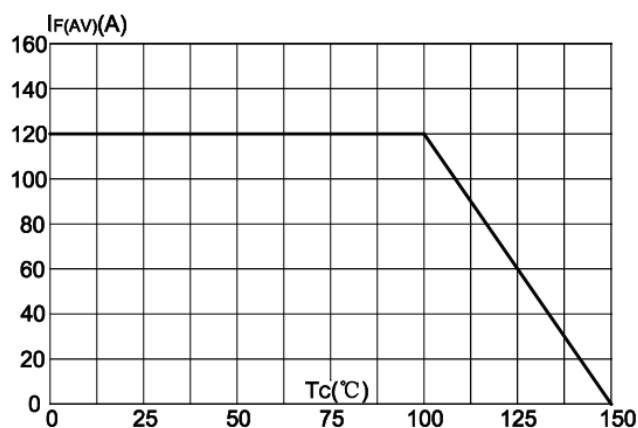
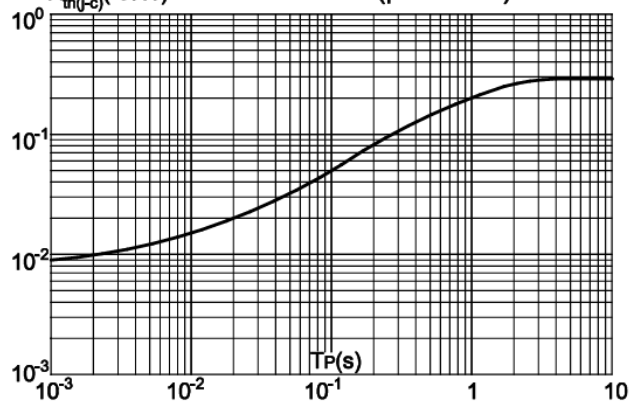
Thermal Characteristics (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance, junction to case	per diode	$R_{th(j-c)}$		0.29		$^\circ\text{C}/\text{W}$
Thermal resistance, case to heatsink	per diode	$R_{th(c-s)}$		0.12		$^\circ\text{C}/\text{W}$
Mounting torque	Module and heatsink fixed torque M5	M	1.7		2.3	N·m

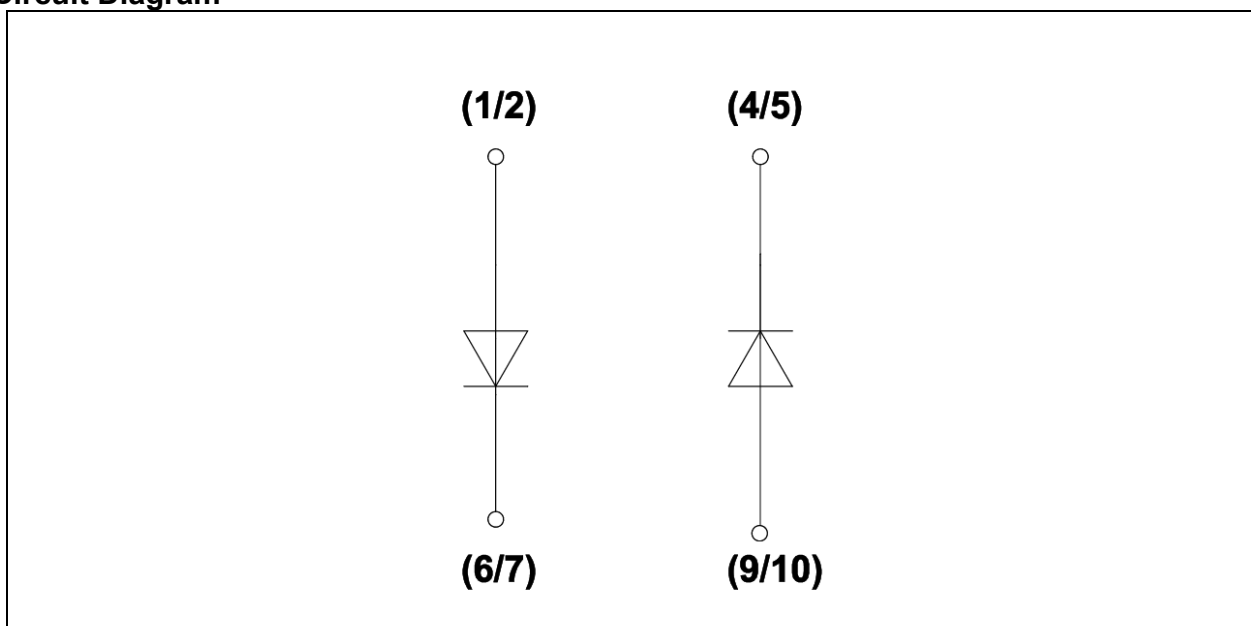
Ordering Information

Device	Marking	Package	Weight	Inner Box	Per Carton
JMD120K318V1W	JMD120K318V1W	V1	43g/PCS	60 PCS	360 PCS

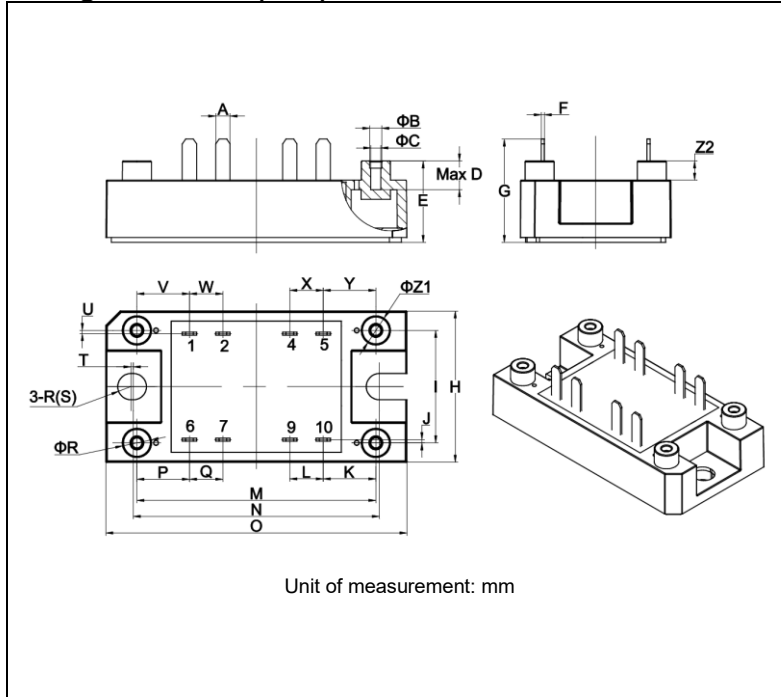
Typical Electrical & Thermal Characteristics

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
 $R_{th(j-c)}$ (°C/W) Junction-to-case(per diode)


Circuit Diagram



Package Outlines (mm)



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	3.5	4	4.5	0.138	0.157	0.177



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