JRB Series 6000W TVS

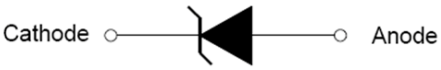
Rev.2.2

DESCRIPTION

The JRB series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 20 volts to 43 volts. They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.

R-6/P-600

Bi-directional



Uni-directional

Symbol

FEATURES

- ✧ Low incremental surge resistance.
- ✧ Excellent clamping capability.
- ✧ JEDEC R-6/P-600 molded plastic.
- ✧ Color band denoted cathode except bidirectional.
- ✧ High temperature wave soldering: 265℃/10s at terminals.
- ✧ Plastic package has under writers laboratory flammability 94V-0.
- ✧ 6000W peak pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.

ABSOLUTE MAXIMUM RATINGS(T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	6000	W
Peak pulse current on 10/1000μs waveform	I_{PP}	See next table	A
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	8	W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	℃
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	400	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	8.0	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	℃/W

ELECTRICAL CHARACTERISTICS(T_A=25℃)

Part Number		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
JRB20A	JRB20CA	20	5	22.2	24.5	5	32.4	185.2
JRB22A	JRB22CA	22	5	24.4	26.9	5	35.5	169.0
JRB24A	JRB24CA	24	5	26.7	29.5	5	38.9	154.2
JRB26A	JRB26CA	26	5	28.9	31.9	5	42.1	142.5
JRB28A	JRB28CA	28	5	31.1	34.4	5	45.4	132.2
JRB30A	JRB30CA	30	5	33.3	36.8	5	48.4	124.0
JRB33A	JRB33CA	33	5	36.7	40.6	5	53.3	112.6
JRB36A	JRB36CA	36	5	40.0	44.2	5	58.1	103.3
JRB40A	JRB40CA	40	5	44.4	49.1	5	64.5	93.0
JRB43A	JRB43CA	43	5	47.8	52.8	5	69.4	86.5

① Surge waveform:10/1000μs

V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25℃, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

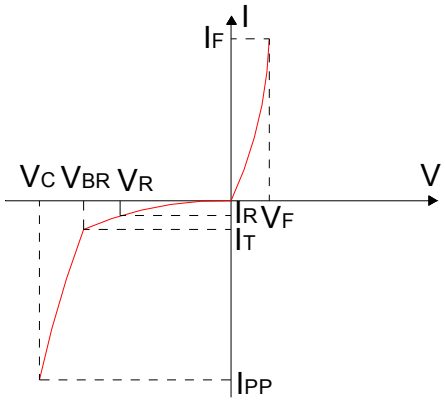


FIG.2:V- I curve characteristics (Bi-directional)

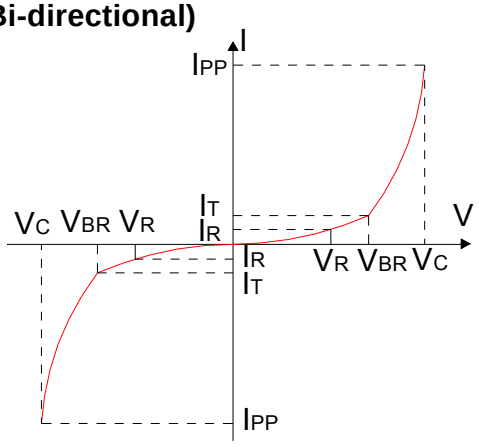


FIG.3: Pulse waveform

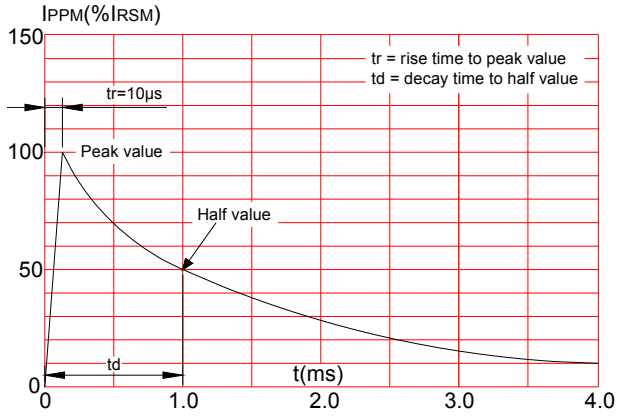
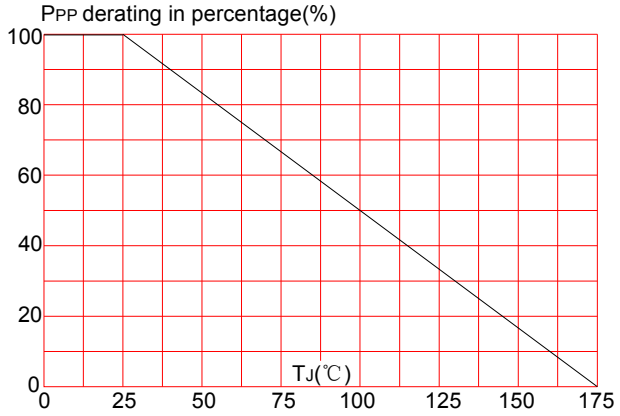


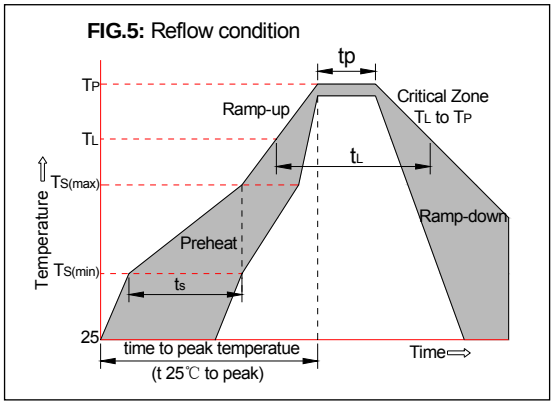
FIG.4: Pulse derating curve



SOLDERING PARAMETERS

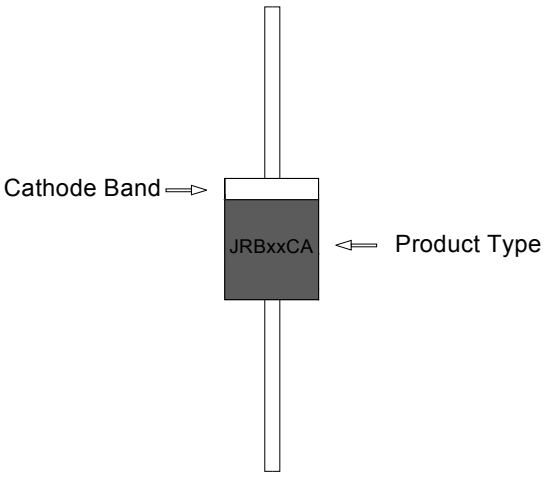
Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG.5: Reflow condition



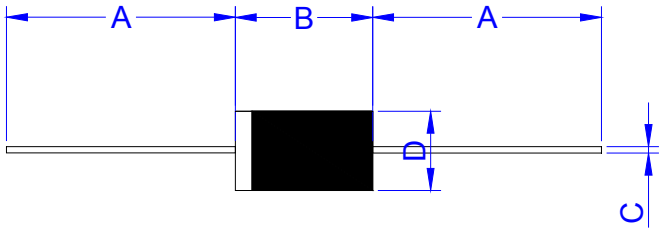
Flow/Wave Soldering(Solder Dipping)	
Peak temperature	265℃
Dipping time	10 sec.
Soldering	1 time

MARKING & ORDERING INFORMATION



JRB xx C A
(1) (2) (3) (4)
(1)Series:6000 watts series
(2)Reverse Stand-off Voltage
(3)Bi-directional
(4)5% V_{BR} Voltage tolerance

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	-	25.40	-
B	0.339	0.370	8.60	9.40
C	0.047	0.055	1.20	1.40
D	0.339	0.358	8.60	9.10

Part Number	UNIT WEIGHT (g/PCS) typ.	Case Type	Quantity	Packing Option
JRBxxA/CA	2.4	R-6/P-600	300	Box