FEATURES

- Low incremental surge resistance.
- Excellent clamping capability.
- Typical I_R less than 2μA above 40V.
- Color band denoted cathode except bidirectional.
- Plastic package has under writers laboratory flammability 94V-0.
- 20000W peak pulse power capability at 10/1000μs waveform.
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃
- Terminal: solder plated, solderable per J-STD-002.
- Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

R-6/P-600

Bi-directional

Uni-directional

Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS AND CHARACTERISTICS(T_A=25°C)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation at 10/1000μs waveform	P_{PPM}	20000	W
Peak pulse current of at 10/1000μs waveform	I_{PPM}	See Table	A
Steady state power dissipation at T_L=75 ℃	$P_{M(AV)}$	8.0	W
Peak forward surge current, 8.3ms single half sine-wave for unidirectional only	I_{FSM}	400	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	8	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	40	
Operating junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150	℃

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number		Marking Code		V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①	I_R@V_R
Uni-Polar	Bi-Polar	Uni-Polar	Bi-Polar	V	Min(V)	Max (V)	mA	V	A	Max(μA)
20KPA20A	20KPA20CA	20KPA20A	20KPA20CA	20.0	22.34	24.94	50	36.8	548.9	5000
20KPA24A	20KPA24CA	20KPA24A	20KPA24CA	24.0	26.81	29.93	50	41.2	490.3	5000
20KPA26A	20KPA26CA	20KPA26A	20KPA26CA	26.0	29.04	32.42	50	44.7	451.9	2000
20KPA28A	20KPA28CA	20KPA28A	20KPA28CA	28.0	31.28	34.92	50	48.0	420.8	1000
20KPA30A	20KPA30CA	20KPA30A	20KPA30CA	30.0	33.51	37.41	5	51.5	392.2	250
20KPA32A	20KPA32CA	20KPA32A	20KPA32CA	32.0	35.74	39.90	5	54.3	372.0	150
20KPA34A	20KPA34CA	20KPA34A	20KPA34CA	34.0	38.00	42.42	5	57.5	351.3	50
20KPA36A	20KPA36CA	20KPA36A	20KPA36CA	36.0	40.20	44.88	5	61.5	328.5	20
20KPA40A	20KPA40CA	20KPA40A	20KPA40CA	40.0	44.70	49.90	5	67.8	297.9	15
20KPA44A	20KPA44CA	20KPA44A	20KPA44CA	44.0	49.10	54.81	5	72.7	277.9	2
20KPA48A	20KPA48CA	20KPA48A	20KPA48CA	48.0	53.60	59.83	5	79.4	254.4	2
20KPA52A	20KPA52CA	20KPA52A	20KPA52CA	52.0	58.10	64.86	5	85.8	235.4	2
20KPA56A	20KPA56CA	20KPA56A	20KPA56CA	56.0	62.60	69.88	5	92.6	218.1	2
20KPA60A	20KPA60CA	20KPA60A	20KPA60CA	60.0	67.00	74.79	5	97.6	207.0	2
20KPA64A	20KPA64CA	20KPA64A	20KPA64CA	64.0	71.50	79.82	5	104.0	194.2	2
20KPA68A	20KPA68CA	20KPA68A	20KPA68CA	68.0	76.00	84.84	5	110.0	183.6	2
20KPA72A	20KPA72CA	20KPA72A	20KPA72CA	72.0	80.40	89.75	5	116.0	174.1	2
20KPA80A	20KPA80CA	20KPA80A	20KPA80CA	80.0	89.40	99.80	5	130.0	155.4	2
20KPA88A	20KPA88CA	20KPA88A	20KPA88CA	88.0	98.30	109.73	5	142.0	142.3	2
20KPA96A	20KPA96CA	20KPA96A	20KPA96CA	96.0	107.20	119.67	5	155.0	130.3	2
20KPA104A	20KPA104CA	20KPA104A	20KPA104CA	104.0	116.20	129.72	5	168.0	120.2	2
20KPA112A	20KPA112CA	20KPA112A	20KPA112CA	112.0	125.10	139.65	5	182.0	111.0	2
20KPA120A	20KPA120CA	20KPA120A	20KPA120CA	120.0	134.00	149.59	5	194.0	104.1	2
20KPA132A	20KPA132CA	20KPA132A	20KPA132CA	132.0	147.40	164.54	5	213.0	94.8	2

Part Number		Marking Code		V_R	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	I_{PP} ①	$I_R@V_R$
Uni-Polar	Bi-Polar	Uni-Polar	Bi-Polar	V	Min(V)	Max (V)	mA	V	A	Max(μA)
20KPA144A	20KPA144CA	20KPA144A	20KPA144CA	144.0	160.80	179.50	5	232.0	87.1	2
20KPA160A	20KPA160CA	20KPA160A	20KPA160CA	160.0	178.70	199.49	5	258.0	78.3	2
20KPA172A	20KPA172CA	20KPA172A	20KPA172CA	172.0	192.10	214.44	5	277.0	72.9	2
20KPA180A	20KPA180CA	20KPA180A	20KPA180CA	180.0	201.10	224.49	5	291.0	69.4	2
20KPA192A	20KPA192CA	20KPA192A	20KPA192CA	192.0	214.50	239.45	5	309.0	65.4	2
20KPA204A	20KPA204CA	20KPA204A	20KPA204CA	204.0	227.90	254.41	5	329.0	61.4	2
20KPA216A	20KPA216CA	20KPA216A	20KPA216CA	216.0	241.30	269.37	5	348.0	58.0	2
20KPA232A	20KPA232CA	20KPA232A	20KPA232CA	232.0	259.10	289.24	5	374.0	54.0	2
20KPA240A	20KPA240CA	20KPA240A	20KPA240CA	240.0	268.10	299.28	5	387.0	52.2	2
20KPA256A	20KPA256CA	20KPA256A	20KPA256CA	256.0	286.00	319.27	5	412.0	49.0	2
20KPA280A	20KPA280CA	20KPA280A	20KPA280CA	280.0	312.80	349.18	5	451.0	44.8	2
20KPA300A	20KPA300CA	20KPA300A	20KPA300CA	300.0	335.10	374.08	5	483.0	41.8	2

Note:
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

CHARACTERISTIC CURVES

Figure 1: V- I curve characteristics (Uni-directional)

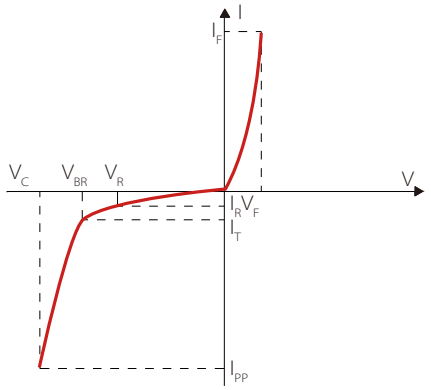


Figure 2: V- I curve characteristics (Bi-directional)

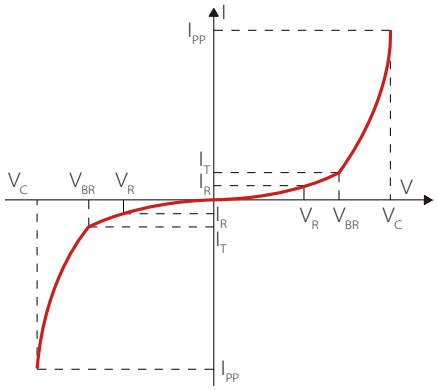


Figure 3: Pulse waveform

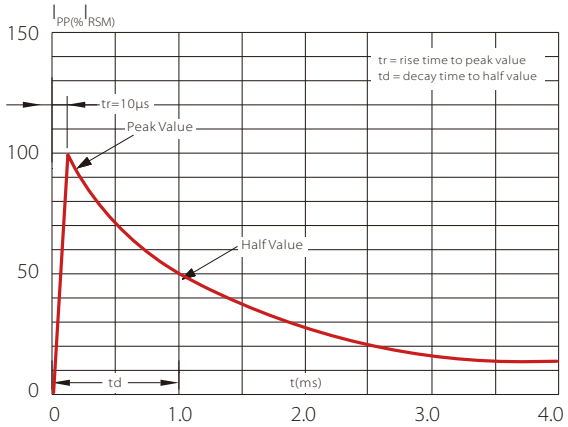


Figure 4: Power derating curve

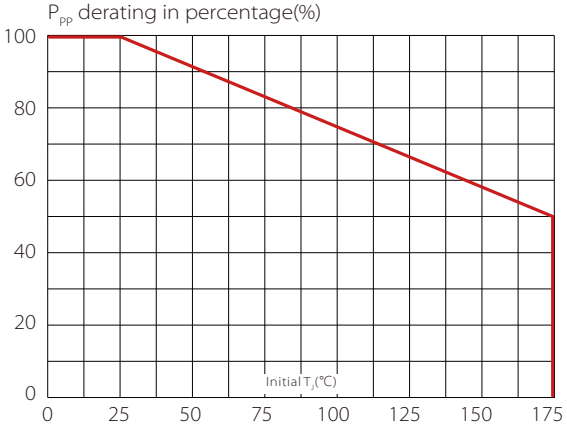


Figure 5: Peak pulse power dissipation vs. pulse width

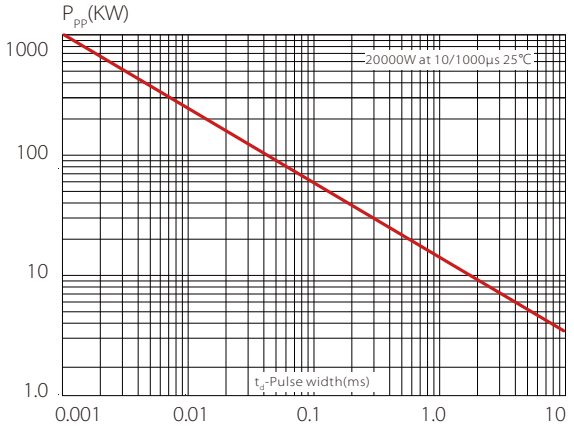


Figure 6: Typical Junction Capacittance

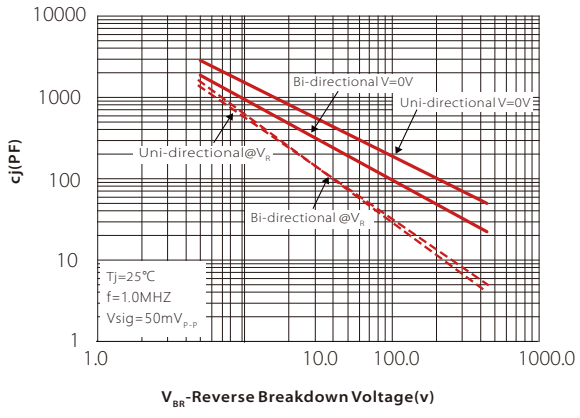
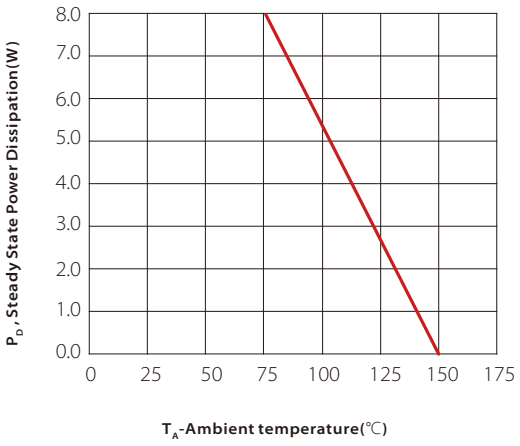
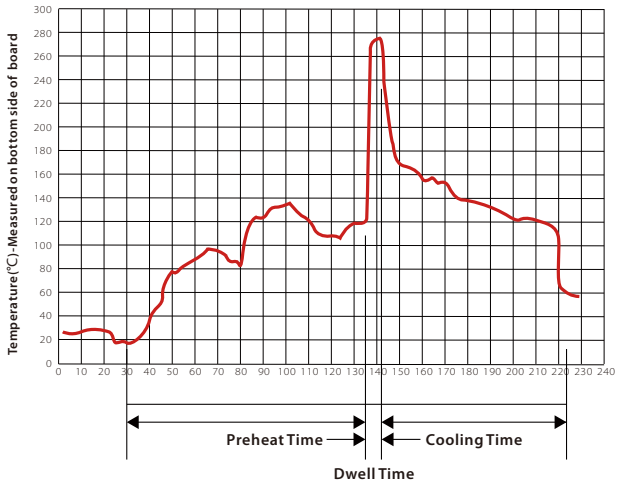


Figure 7: Steady State Power Dissipaton Deraiting Curve

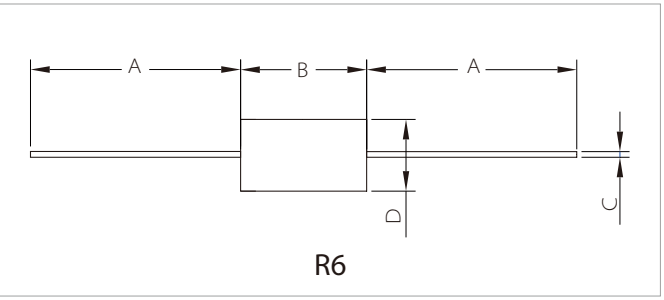


WAVE SOLDERING



Wave Parameter		Lead–free assembly
Pre Heat	Temperature Min	100°C
	Temperature Max	150°C
	Time(min to max)	60 – 180 secs
Solder pot Temperature		280°C Max
Solder Dwell Time		2-5 seconds

P600 PACKAGE INFORMATION



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

ORDERING INFORMATION

Part Number	Component Package	Per BOX	Description
20KPAxxA/CA	R6/P600	300pcs	Box
20KPAxxA/CA	R6/P600	800pcs	Reel

Headquarters
No.3387 Shendu Road Pujiang
I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code
Website
Wechat

To find your local partner within Semiware's global network: www.semiware.com