

Features

- Junction passivation optimized design passivated anisotropic rectifier technology
- 200W peak pulse power capability at 10×1000μs waveform.
- Very fast response time
- Meets MSL level 1, per J-STD020, LF maximum peak of 260°C
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/96/EC

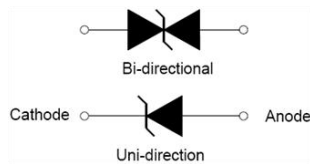
Mechanical Characteristics

- Case:SMF/SOD-123FL
- Molding compound meets UL 94V-0 flammability rating
- Base P/NHE3-RoHS compliant,AEC-Q101 qualified
- Terminals:Matte tin plated leads,solderable per
- J-STD-002 and JESD22-B102

Schematic And Configuration



SMF



Symbol

Primary Characteristics	
V_{RWM}	5 V to 220 V
P_{PPM}	200 W
V_F	3.0 V
$T_J \text{ max}$	150 °C

Absolute Maximum Ratings (T_c=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage and operating junction temperature range	T _{STG} / T _J	-55 to +150	°C
Peak pulse power dissipation on 10/1000μs waveform	P _{PPM}	200	W
Maximum instantaneous forward voltage at 20A for unidirectional	V _F	3.5	V
Typical thermal resistance junction to lead	R _{θJL}	100	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	220	°C/W

Notes:

- 1 Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

Electrical Characteristics (Ta=25 , unless otherwise noted)

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
0.2KP5.0A	0.2KP5.0CA	5.0	100	6.40	7.00	10	9.2	21.7
0.2KP6.0A	0.2KP6.0CA	6.0	100	6.67	7.37	10	10.3	19.4
0.2KP6.5A	0.2KP6.5CA	6.5	30	7.22	7.98	10	11.2	17.9
0.2KP7.0A	0.2KP7.0CA	7.0	10	7.78	8.60	10	12.0	16.7
0.2KP7.5A	0.2KP7.5CA	7.5	5	8.33	9.21	1	12.9	15.5
0.2KP8.0A	0.2KP8.0CA	8.0	2	8.89	9.83	1	13.6	14.7
0.2KP8.5A	0.2KP8.5CA	8.5	2	9.44	10.40	1	14.4	13.8
0.2KP9.0A	0.2KP9.0CA	9.0	2	10.00	11.10	1	15.4	13.0
0.2KP10A	0.2KP10CA	10.0	1	11.10	12.30	1	17.0	11.8
0.2KP11A	0.2KP11CA	11.0	1	12.20	13.50	1	18.2	11.0
0.2KP12A	0.2KP12CA	12.0	1	13.30	14.70	1	19.9	10.1
0.2KP13A	0.2KP13CA	13.0	1	14.40	15.90	1	21.5	9.3
0.2KP14A	0.2KP14CA	14.0	1	15.60	17.20	1	23.2	8.6
0.2KP15A	0.2KP15CA	15.0	1	16.70	18.50	1	24.4	8.2
0.2KP16A	0.2KP16CA	16.0	1	17.80	19.70	1	26.0	7.7
0.2KP17A	0.2KP17CA	17.0	1	18.90	20.90	1	27.6	7.2
0.2KP18A	0.2KP18CA	18.0	1	20.00	22.10	1	29.2	6.8
0.2KP20A	0.2KP20CA	20.0	1	22.20	24.50	1	32.4	6.2
0.2KP22A	0.2KP22CA	22.0	1	24.40	26.90	1	35.5	5.6
0.2KP24A	0.2KP24CA	24.0	1	26.70	29.50	1	38.9	5.1
0.2KP26A	0.2KP26CA	26.0	1	28.90	31.90	1	42.1	4.8
0.2KP28A	0.2KP28CA	28.0	1	31.10	34.40	1	45.4	4.4
0.2KP30A	0.2KP30CA	30.0	1	33.30	36.80	1	48.4	4.1
0.2KP33A	0.2KP33CA	33.0	1	36.70	40.60	1	53.3	3.8
0.2KP36A	0.2KP36CA	36.0	1	40.00	44.20	1	58.1	3.4
0.2KP40A	0.2KP40CA	40.0	1	44.40	49.10	1	64.5	3.1
0.2KP43A	0.2KP43CA	43.0	1	47.80	52.80	1	69.4	2.8
0.2KP45A	0.2KP45CA	45.0	1	50.00	55.30	1	72.7	2.7
0.2KP48A	0.2KP48CA	48.0	1	53.30	58.90	1	77.4	2.6
0.2KP51A	0.2KP51CA	51.0	1	56.70	62.70	1	82.4	2.4

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
0.2KP54A	0.2KP54CA	54.0	1	60.00	66.30	1	87.1	2.3
0.2KP58A	0.2KP58CA	58.0	1	64.40	71.20	1	93.6	2.1
0.2KP60A	0.2KP60CA	60.0	1	66.70	73.70	1	96.8	2.0
0.2KP64A	0.2KP64CA	64.0	1	71.10	78.60	1	103.0	1.9
0.2KP70A	0.2KP70CA	70.0	1	77.80	86.00	1	113.0	1.8
0.2KP75A	0.2KP75CA	75.0	1	83.30	92.10	1	121.0	1.7
0.2KP78A	0.2KP78CA	78.0	1	86.70	95.80	1	126.0	1.6
0.2KP85A	0.2KP85CA	85.0	1	94.40	104.0	1	137.0	1.5
0.2KP90A	0.2KP90CA	90.0	1	100.0	111.0	1	146.0	1.4
0.2KP100A	0.2KP100CA	100.0	1	111.0	123.0	1	162.0	1.2
0.2KP110A	0.2KP110CA	110.0	1	122.0	135.0	1	177.0	1.1
0.2KP120A	0.2KP120CA	120.0	1	133.0	147.0	1	193.0	1.0
0.2KP130A	0.2KP130CA	130.0	1	144.0	159.0	1	209.0	0.9
0.2KP150A	0.2KP150CA	150.0	1	167.0	185.0	1	243.0	0.8
0.2KP160A	0.2KP160CA	160.0	1	178.0	197.0	1	259.0	0.8
0.2KP170A	0.2KP170CA	170.0	1	189.0	209.0	1	275.0	0.7
0.2KP180A	0.2KP180CA	180.0	1	201.0	222.0	1	292.0	0.7
0.2KP200A	0.2KP200CA	200.0	1	224.0	247.0	1	324.0	0.6
0.2KP220A	0.2KP220CA	220.0	1	246.0	272.0	1	356.0	0.5

① Surge waveform:10/1000μs

VR: Stand-off voltage -- maximum voltage that can be applied

VBR: Breakdown voltage

VC: Clamping voltage -- peak voltage measured across the suppressor at a specified

IPP IR: Reverse leakage current

Ratings And Characteristics Curves ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

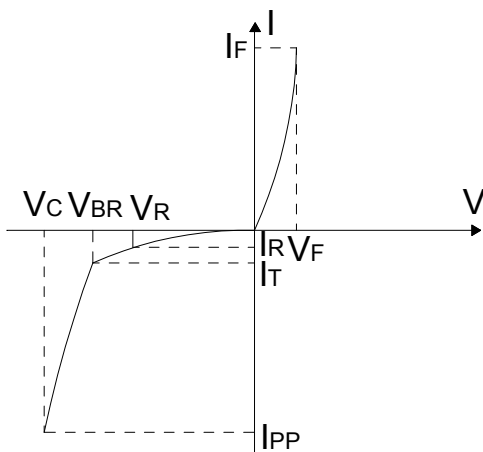


FIG.1: V- I curve characteristics (Uni-directional)

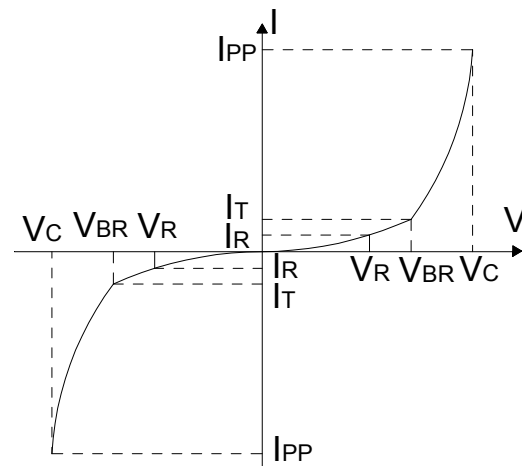


FIG.2: V- I curve characteristics (Bi-directional)

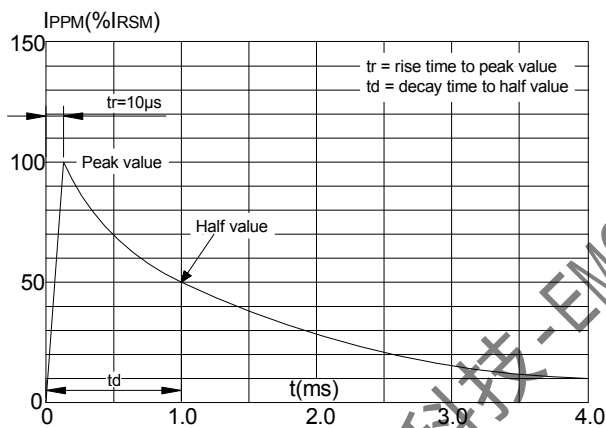


FIG.3: Pulse waveform

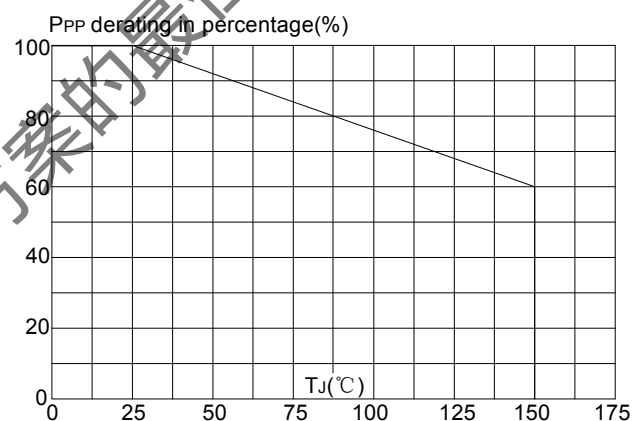


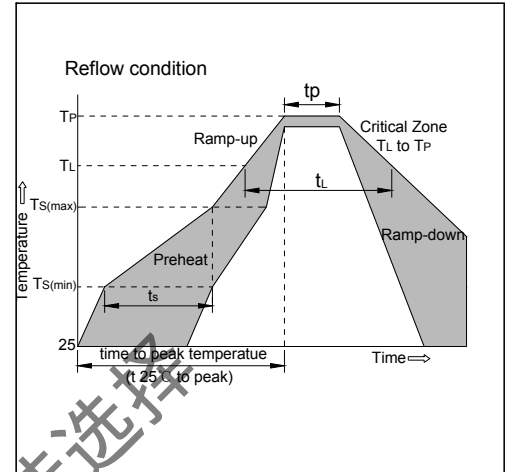
FIG.4: Pulse derating curve

Ordering Information

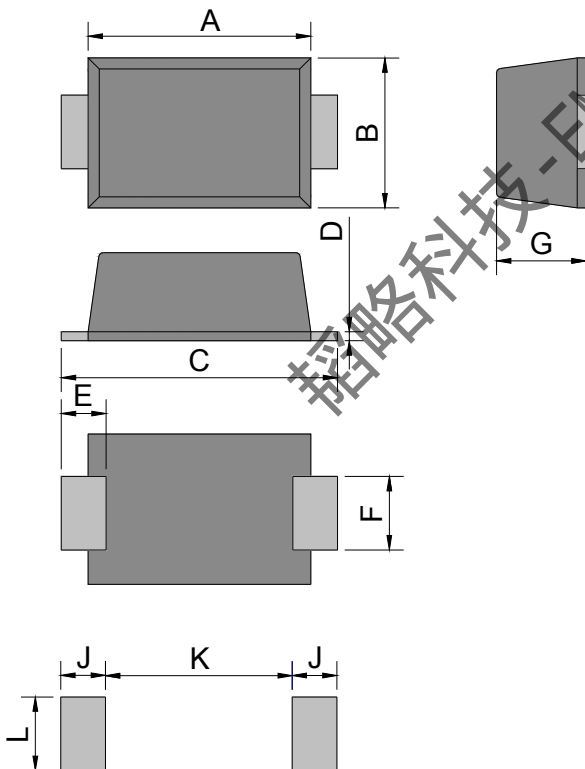
<p>0.2KP</p> <p>200W@10/1000US</p>	<p>XX</p> <p>VR</p>	<p>(CA)A</p> <p>bi-directional polarity uni-directional polarity</p>
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Soldering Parameters

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



Package Mechanical Data



SOD-123FL

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.01
E	0.3	0.9	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053
J	1.30		0.051	
K		1.70		0.067
L	1.30		0.051	

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