

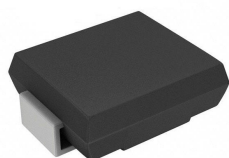
Features

- Junction passivation optimized design passivated anisotropic rectifier technology
- 1500W peak pulse power capability at 10×1000μs waveform.
- Very fast response time
- Meets MSL-1, per J-STD-020, LF maximum peak of 260°C
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/96/EC

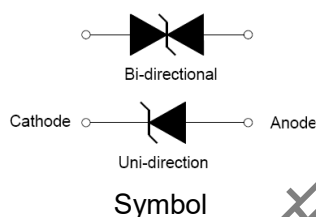
Mechanical Characteristics

- Case: DO-214AB (SMC)
- 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



SMC



Primary Characteristics	
V_{RWM}	5 V to 440 V
P_{PPM}	1500 W
$P_{M(AV)}$	6.5W
I_{FSM}	200 A
$T_J \text{ max.}$	150 °C

Absolute Maximum Ratings ($T_L=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J / T_{STG}	-55 to +150	°C
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	1500	W
Maximum instantaneous forward voltage at 100A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (Note 1)	I_{FSM}	200	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	°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°C, 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
1.5KP5.0A	1.5KP5.0CA	5.0	300	6.40	7.00	10	9.2	163.0
1.5KP6.0A	1.5KP6.0CA	6.0	250	6.67	7.37	10	10.3	145.6
1.5KP6.5A	1.5KP6.5CA	6.5	150	7.22	7.98	10	11.2	134.0
1.5KP7.0A	1.5KP7.0CA	7.0	100	7.78	8.60	10	12.0	125.0
1.5KP7.5A	1.5KP7.5CA	7.5	50	8.33	9.21	1	12.9	116.3
1.5KP8.0A	1.5KP8.0CA	8.0	30	8.89	9.83	1	13.6	110.3
1.5KP8.5A	1.5KP8.5CA	8.5	20	9.44	10.40	1	14.4	104.2
1.5KP9.0A	1.5KP9.0CA	9.0	10	10.00	11.10	1	15.4	97.4
1.5KP10A	1.5KP10CA	10	5	11.10	12.30	1	17.0	88.2
1.5KP11A	1.5KP11CA	11	2	12.20	13.50	1	18.2	82.4
1.5KP12A	1.5KP12CA	12	1	13.30	14.70	1	19.9	75.4
1.5KP13A	1.5KP13CA	13	1	14.40	15.90	1	21.5	69.8
1.5KP14A	1.5KP14CA	14	1	15.60	17.20	1	23.2	64.7
1.5KP15A	1.5KP15CA	15	1	16.70	18.50	1	24.4	61.5
1.5KP16A	1.5KP16CA	16	1	17.80	19.70	1	26.0	57.7
1.5KP17A	1.5KP17CA	17	1	18.90	20.90	1	27.6	54.4
1.5KP18A	1.5KP18CA	18	1	20.00	22.10	1	29.2	51.4
1.5KP20A	1.5KP20CA	20	1	22.20	24.50	1	32.4	46.3
1.5KP22A	1.5KP22CA	22	1	24.40	26.90	1	35.5	42.3
1.5KP24A	1.5KP24CA	24	1	26.70	29.50	1	38.9	38.6
1.5KP26A	1.5KP26CA	26	1	28.90	31.90	1	42.1	35.6
1.5KP28A	1.5KP28CA	28	1	31.10	34.40	1	45.4	33.1
1.5KP30A	1.5KP30CA	30	1	33.30	36.80	1	48.4	31.0
1.5KP33A	1.5KP33CA	33	1	36.70	40.60	1	53.3	28.2
1.5KP36A	1.5KP36CA	36	1	40.00	44.20	1	58.1	25.8
1.5KP40A	1.5KP40CA	40	1	44.40	49.10	1	64.5	23.3
1.5KP43A	1.5KP43CA	43	1	47.80	52.80	1	69.4	21.6
1.5KP45A	1.5KP45CA	45	1	50.00	55.30	1	72.7	20.6
1.5KP48A	1.5KP48CA	48	1	53.30	58.90	1	77.4	19.4
1.5KP51A	1.5KP51CA	51	1	56.70	62.70	1	82.4	18.2
1.5KP54A	1.5KP54CA	54	1	60.00	66.30	1	87.1	17.2

Electrical Characteristics (Ta=25°C, 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
1.5KP58A	1.5KP58CA	58	1	64.40	71.20	1	93.6	16.1
1.5KP60A	1.5KP60CA	60	1	66.70	73.70	1	96.8	15.5
1.5KP64A	1.5KP64CA	64	1	71.10	78.60	1	103.0	14.6
1.5KP70A	1.5KP70CA	70	1	77.80	86.00	1	113.0	13.3
1.5KP75A	1.5KP75CA	75	1	83.30	92.10	1	121.0	12.4
1.5KP78A	1.5KP78CA	78	1	86.70	95.80	1	126.0	11.9
1.5KP85A	1.5KP85CA	85	1	94.40	104.0	1	137.0	11.0
1.5KP90A	1.5KP90CA	90	1	100.0	111.0	1	146.0	10.3
1.5KP100A	1.5KP100CA	100	1	111.0	123.0	1	162.0	9.3
1.5KP110A	1.5KP110CA	110	1	122.0	135.0	1	177.0	8.5
1.5KP120A	1.5KP120CA	120	1	133.0	147.0	1	193.0	7.8
1.5KP130A	1.5KP130CA	130	1	144.0	159.0	1	209.0	7.2
1.5KP150A	1.5KP150CA	150	1	167.0	185.0	1	243.0	6.2
1.5KP160A	1.5KP160CA	160	1	178.0	197.0	1	259.0	5.8
1.5KP170A	1.5KP170CA	170	1	189.0	209.0	1	275.0	5.5
1.5KP180A	1.5KP180CA	180	1	201.0	222.0	1	292.0	5.2
1.5KP190A	1.5KP190CA	190	1	211.0	234.0	1	307.0	4.9
1.5KP200A	1.5KP200CA	200	1	224.0	247.0	1	324.0	4.7
1.5KP210A	1.5KP210CA	210	1	233.0	258.0	1	337.0	4.5
1.5KP220A	1.5KP220CA	220	1	246.0	272.0	1	356.0	4.2
1.5KP250A	1.5KP250CA	250	1	279.0	309.0	1	405.0	3.7
1.5KP300A	1.5KP300CA	300	1	335.0	371.0	1	486.0	3.1
1.5KP350A	1.5KP350CA	350	1	391.0	432.0	1	567.0	2.7
1.5KP400A	1.5KP400CA	400	1	447.0	494.0	1	648.0	2.3
1.5KP440A	1.5KP440CA	440	1	492.0	543.0	1	713.0	2.1

① Surge waveform: 10/1000μs

V_R: Stand-off voltage -- maximum voltage that can be appliedV_{BR}: Breakdown voltageV_C: Clamping voltage -- peak voltage measured across the suppressor at a specified I_{PP}I_R: Reverse leakage current

Ratings And Characteristics Curves (T_A=25°C , unless otherwise noted)

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

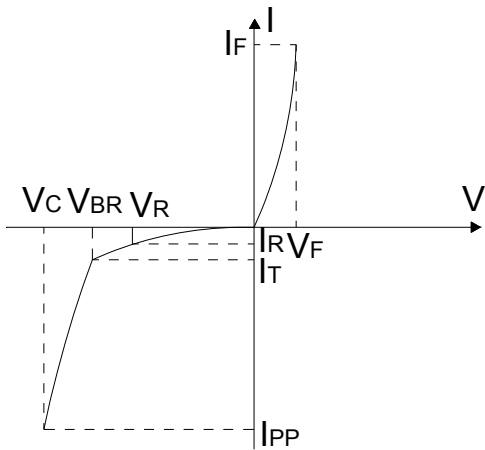


FIG.2:V- I curve characteristics
(Bi-directional)

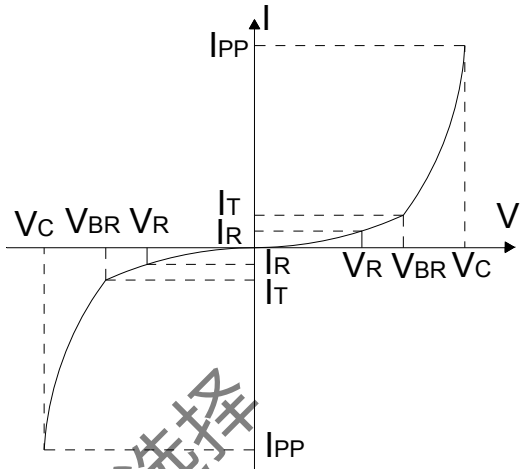


FIG.3: Pulse waveform

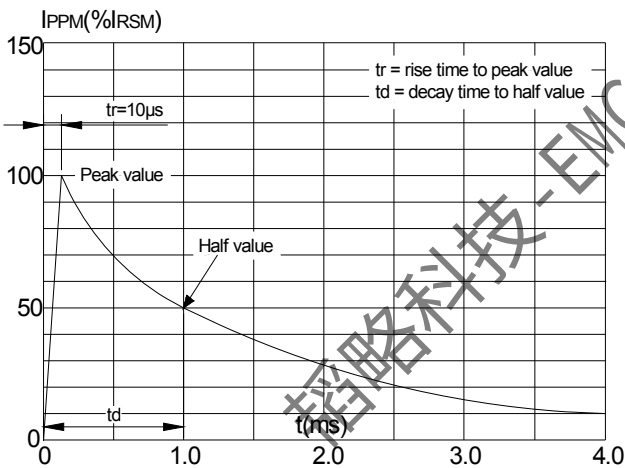
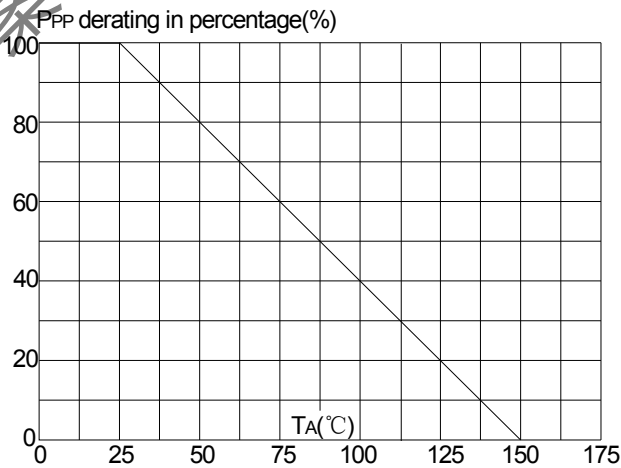


FIG.4: Pulse derating curve

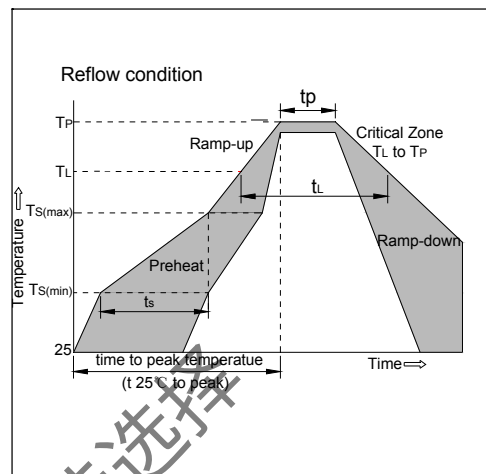


Ordering Information

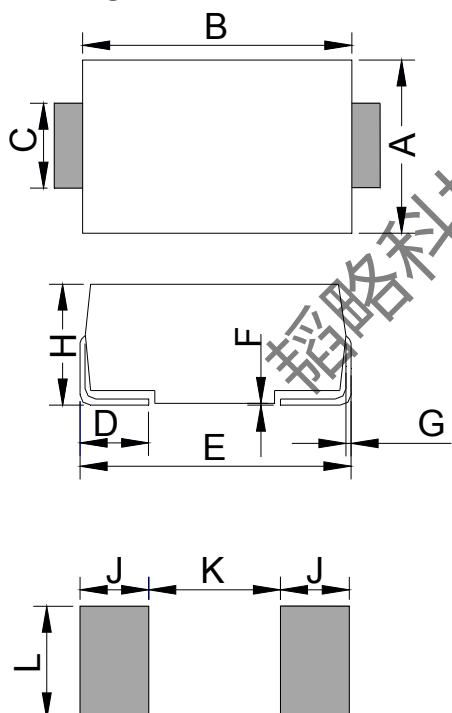
1.5KP	XX	(CA)A
1500W@10/1000US	VR	bi-directional polarity uni-directional polarity

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



DO-214AB (SMC)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

Contact Information

SHENZHEN TOP-FLIGHT TECHNOLOGY CO.,LTD

4th Floor, C Building, Quansen Industrial Park , Bulong Road, Longhua New District, Shenzhen

Tel: 86-755-82908191 Fax: 86-755-82908701 Email: kang@topleve.com

Website: <http://www.topleve.com>