

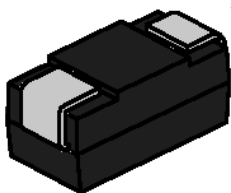
Features

- Junction passivation optimized design
passivated anisotropic rectifier technology
- 400W peak pulse power capability at
10×1000μs waveform.
- Very fast response time
- Meets MSL level 1, per J-STD020, LF maximum
peak of 260℃
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/96/EC

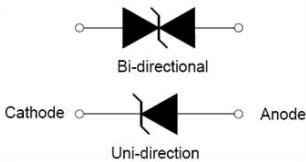
Mechanical Characteristics

- Case:SMA/DO-214AC
- 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



SMA



Symbol

Primary Characteristics	
V_{RWM}	5 V to 440 V
P_{PPM}	400 W
$P_{M(AV)}$	3.3W
V_F	5.0 V
$T_J \text{ max.}$	150 °C

Absolute Maximum Ratings (T_C=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T _J /T _{STG}	-55 to +150	℃
Steady state power dissipation at T _L =75 °C	P _{M(AV)}	3.3	W
Peak pulse power dissipation on 10/1000μs waveform	P _{PPM}	400	W
Maximum instantaneous forward voltage at 25A for unidirectional	V _F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (Note 1)	I _{FSM}	60	A
Typical thermal resistance junction to lead	R _{θJL}	30	℃ /W
Typical thermal resistance junction to ambient	R _{θJA}	120	℃ /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
0.4KP5.0A	0.4KP5.0CA	5.0	120	6.40	7.00	10	9.2	43.5
0.4KP6.0A	0.4KP6.0CA	6.0	120	6.67	7.37	10	10.3	38.8
0.4KP6.5A	0.4KP6.5CA	6.5	80	7.22	7.98	10	11.2	35.7
0.4KP7.0A	0.4KP7.0CA	7.0	50	7.78	8.60	10	12.0	33.3
0.4KP7.5A	0.4KP7.5CA	7.5	50	8.33	9.21	1	12.9	31.0
0.4KP8.0A	0.4KP8.0CA	8.0	20	8.89	9.83	1	13.6	29.4
0.4KP8.5A	0.4KP8.5CA	8.5	10	9.44	10.40	1	14.4	27.8
0.4KP9.0A	0.4KP9.0CA	9.0	5	10.00	11.10	1	15.4	26.0
0.4KP10A	0.4KP10CA	10.0	2	11.10	12.30	1	17.0	23.5
0.4KP11A	0.4KP11CA	11.0	1	12.20	13.50	1	18.2	22.0
0.4KP12A	0.4KP12CA	12.0	1	13.30	14.70	1	19.9	20.1
0.4KP13A	0.4KP13CA	13.0	1	14.40	15.90	1	21.5	18.6
0.4KP14A	0.4KP14CA	14.0	1	15.60	17.20	1	23.2	17.3
0.4KP15A	0.4KP15CA	15.0	1	16.70	18.50	1	24.4	16.4
0.4KP16A	0.4KP16CA	16.0	1	17.80	19.70	1	26.0	15.4
0.4KP17A	0.4KP17CA	17.0	1	18.90	20.90	1	27.6	14.5
0.4KP18A	0.4KP18CA	18.0	1	20.00	22.10	1	29.2	13.7
0.4KP20A	0.4KP20CA	20.0	1	22.20	24.50	1	32.4	12.4
0.4KP22A	0.4KP22CA	22.0	1	24.40	26.90	1	35.5	11.3
0.4KP24A	0.4KP24CA	24.0	1	26.70	29.50	1	38.9	10.3
0.4KP26A	0.4KP26CA	26.0	1	28.90	31.90	1	42.1	9.5
0.4KP28A	0.4KP28CA	28.0	1	31.10	34.40	1	45.4	8.8
0.4KP30A	0.4KP30CA	30.0	1	33.30	36.80	1	48.4	8.3
0.4KP33A	0.4KP33CA	33.0	1	36.70	40.60	1	53.3	7.5
0.4KP36A	0.4KP36CA	36.0	1	40.00	44.20	1	58.1	6.9
0.4KP40A	0.4KP40CA	40.0	1	44.40	49.10	1	64.5	6.2
0.4KP43A	0.4KP43CA	43.0	1	47.80	52.80	1	69.4	5.8
0.4KP45A	0.4KP45CA	45.0	1	50.00	55.30	1	72.7	5.5
0.4KP48A	0.4KP48CA	48.0	1	53.30	58.90	1	77.4	5.2
0.4KP51A	0.4KP51CA	51.0	1	56.70	62.70	1	82.4	4.9
0.4KP54A	0.4KP54CA	54.0	1	60.00	66.30	1	87.1	4.6

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	V	A
0.4KP58A	0.4KP58CA	58.0	1	64.40	71.20	1	93.6	4.3
0.4KP60A	0.4KP60CA	60.0	1	66.70	73.70	1	96.8	4.1
0.4KP64A	0.4KP64CA	64.0	1	71.10	78.60	1	103.0	3.9
0.4KP70A	0.4KP70CA	70.0	1	77.80	86.00	1	113.0	3.6
0.4KP75A	0.4KP75CA	75.0	1	83.30	92.10	1	121.0	3.3
0.4KP78A	0.4KP78CA	78.0	1	86.70	95.80	1	126.0	3.2
0.4KP85A	0.4KP85CA	85.0	1	94.40	104.0	1	137.0	2.9
0.4KP90A	0.4KP90CA	90.0	1	100.0	111.0	1	146.0	2.8
0.4KP100A	0.4KP100CA	100.0	1	111.0	123.0	1	162.0	2.5
0.4KP110A	0.4KP110CA	110.0	1	122.0	135.0	1	177.0	2.3
0.4KP120A	0.4KP120CA	120.0	1	133.0	147.0	1	193.0	2.1
0.4KP130A	0.4KP130CA	130.0	1	144.0	159.0	1	209.0	1.9
0.4KP150A	0.4KP150CA	150.0	1	167.0	185.0	1	243.0	1.7
0.4KP160A	0.4KP160CA	160.0	1	178.0	197.0	1	259.0	1.6
0.4KP170A	0.4KP170CA	170.0	1	189.0	209.0	1	275.0	1.5
0.4KP180A	0.4KP180CA	180.0	1	201.0	222.0	1	292.0	1.4
0.4KP200A	0.4KP200CA	200.0	1	224.0	247.0	1	324.0	1.3
0.4KP220A	0.4KP220CA	220.0	1	246.0	272.0	1	356.0	1.1
0.4KP250A	0.4KP250CA	250.0	1	279.0	309.0	1	405.0	1.0
0.4KP300A	0.4KP300CA	300.0	1	335.0	371.0	1	486.0	0.8
0.4KP350A	0.4KP350CA	350.0	1	391.0	432.0	1	567.0	0.7
0.4KP400A	0.4KP400CA	400.0	1	447.0	494.0	1	648.0	0.6
0.4KP440A	0.4KP440CA	440.0	1	492.0	543.0	1	713.0	0.6

① Surge waveform: 10/1000 μs

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

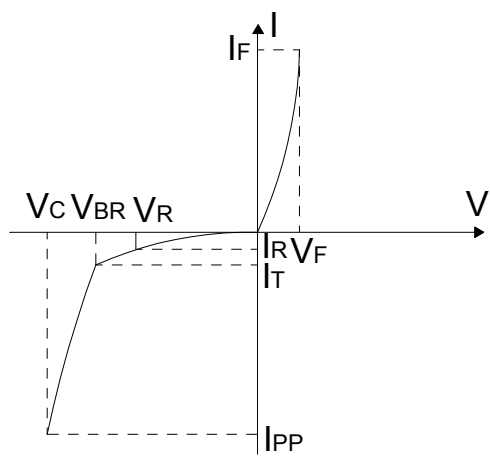


FIG.1:V- I curve characteristics (Uni-directional)

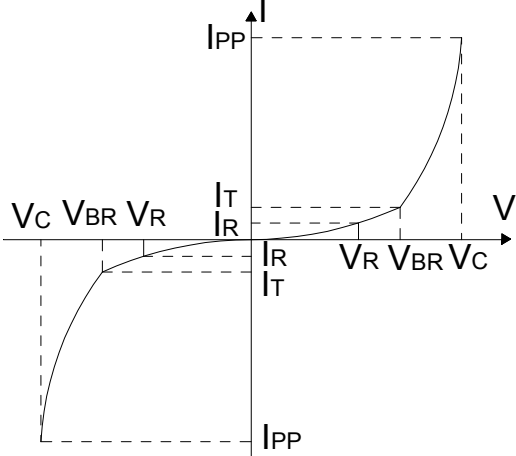


FIG.2:V- I curve characteristics (Bi-directional)

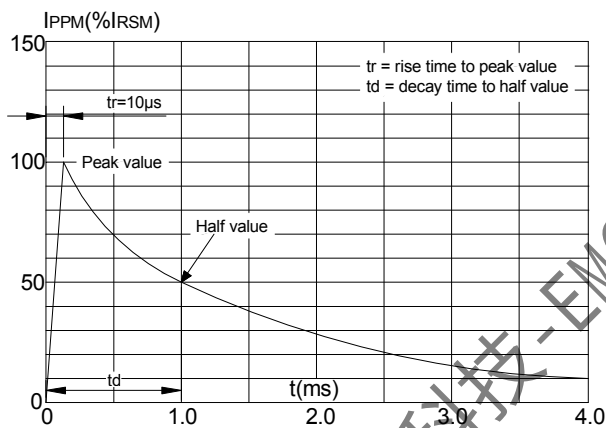


FIG.3: Pulse waveform

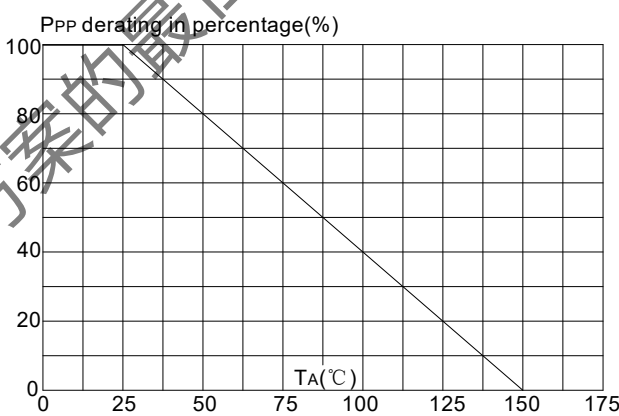


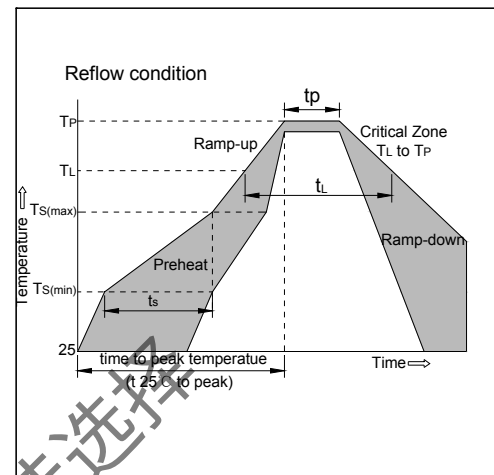
FIG.4: Pulse derating curve

Ordering Information

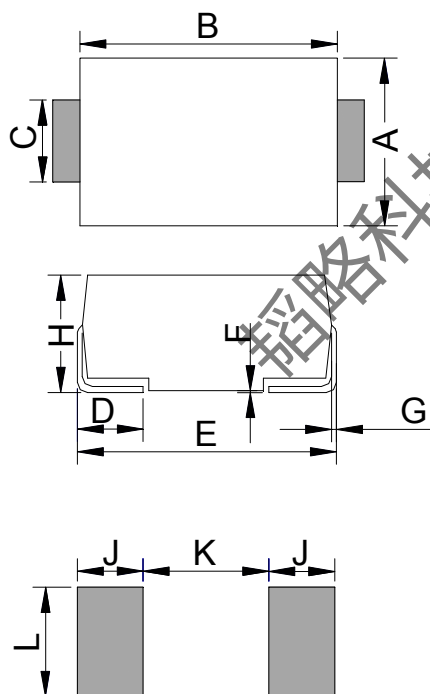
0.4KP	XX	(CA)A
400W@10/1000US	VR	bi-directional polarity uni-directional polarity

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) (t_s)	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-214AC (SMA)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	

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