

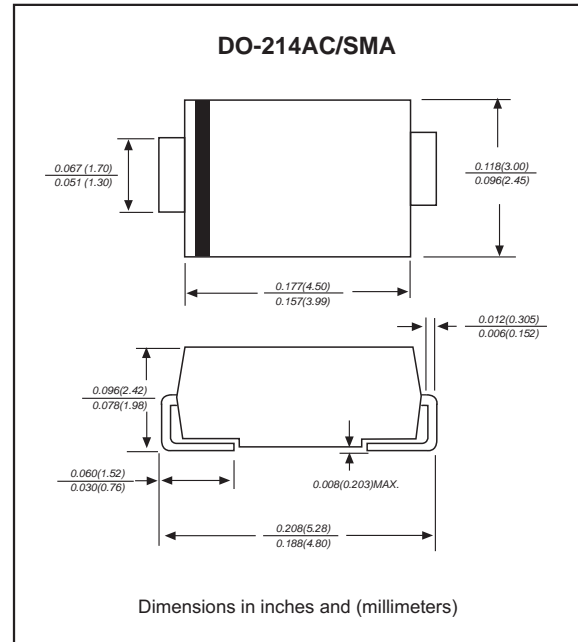
Features

- 400W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%.
- Low profile surface mounted application in order to optimize board space.
- Excellent clamping capability.
- Low incremental surge resistance.
- Fast response time from 0V to VBR, typically less than 1 ps for uni-directional & 5 ns for bi-directional types.
- Glass passivated chip junction.
- Lead-free parts meet RoHS requirements.
- Compliant to Halogen-free

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AC / SMA
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

Package outline



Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Peak power dissipation	with a 10/1000us waveform, Note 1 & Fig. 1	P_{PPM}			400	W
Peak pulse current	with a 10/1000us waveform	I_{PPM}	See table 1			A
Steady state power dissipation	at $T_L=75^\circ\text{C}$ lead length 0.375" (9.5 mm)	$P_{M(AV)}$			1.0	W
Peak forward surge current	8.3ms single half sine-wave superimposed on rated load (jedec method), note 2	I_{FSM}			40	A
Maximum instantaneous forward voltage	for uni-directional types only, at 25A, see note 3	V_F			3.5/5.0	V
Operating temperature		T_J	-55		+150	$^\circ\text{C}$
Storage temperature		T_{STG}	-65		+175	$^\circ\text{C}$

Note 1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2
 2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
 3. $V_F=3.5\text{V}$ max. for devices of $V_{BR}<200\text{V}$, and $V_F=5.0\text{V}$ max. for devices of $V_{BR}>201\text{V}$

Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RMW}
(Uni)	(Bi)	(Uni)	(Bi)	$V_{RMW}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4SMA6.8A	P4SMA6.8CA	6V8A	6V8CA	5.80	6.45	7.14	10	10.5	40.0	1000.0
P4SMA7.5A	P4SMA7.5CA	7V5A	7V5CA	6.40	7.13	7.88	10	11.3	37.0	500.0
P4SMA8.2A	P4SMA8.2CA	8V2A	8V2CA	7.02	7.79	8.61	10	12.1	35.0	200.0
P4SMA9.1A	P4SMA9.1CA	9V1A	9V1CA	7.78	8.65	9.55	1.0	13.4	31.0	50.0
P4SMA10A	P4SMA10CA	10A	10CA	8.55	9.50	10.5	1.0	14.5	29.0	10.0
P4SMA11A	P4SMA11CA	11A	11CA	9.40	10.5	11.6	1.0	15.6	27.0	5.0
P4SMA12A	P4SMA12CA	12A	12CA	10.2	11.4	12.6	1.0	16.7	25.0	5.0
P4SMA13A	P4SMA13CA	13A	13CA	11.1	12.4	13.7	1.0	18.2	23.0	5.0
P4SMA15A	P4SMA15CA	15A	15CA	12.8	14.3	15.8	1.0	21.2	20.0	5.0
P4SMA16A	P4SMA16CA	16A	16CA	13.6	15.2	16.8	1.0	22.5	19.0	5.0
P4SMA18A	P4SMA18CA	18A	18CA	15.3	17.1	18.9	1.0	25.2	17.0	5.0
P4SMA20A	P4SMA20CA	20A	20CA	17.1	19.0	21.0	1.0	27.7	15.0	5.0
P4SMA22A	P4SMA22CA	22A	22CA	18.8	20.9	23.1	1.0	30.6	14.0	5.0
P4SMA24A	P4SMA24CA	24A	24CA	20.5	22.8	25.2	1.0	33.2	13.0	5.0
P4SMA27A	P4SMA27CA	27A	27CA	23.1	25.7	28.4	1.0	37.5	11.2	5.0
P4SMA30A	P4SMA30CA	30A	30CA	25.6	28.5	31.5	1.0	41.4	10.0	5.0
P4SMA33A	P4SMA33CA	33A	33CA	28.2	31.4	34.7	1.0	45.7	9.0	5.0
P4SMA36A	P4SMA36CA	36A	36CA	30.8	34.2	37.8	1.0	49.9	8.4	5.0
P4SMA39A	P4SMA39CA	39A	39CA	33.3	37.1	41.0	1.0	53.9	7.8	5.0
P4SMA43A	P4SMA43CA	43A	43CA	36.8	40.9	45.2	1.0	59.3	7.1	5.0
P4SMA47A	P4SMA47CA	47A	47CA	40.2	44.7	49.4	1.0	64.8	5.0	5.0
P4SMA51A	P4SMA51CA	51A	51CA	43.6	48.5	53.6	1.0	70.1	6.0	5.0
P4SMA56A	P4SMA56CA	56A	56CA	47.8	53.2	58.8	1.0	77.0	5.5	5.0
P4SMA62A	P4SMA62CA	62A	62CA	53.0	58.9	65.1	1.0	85.0	5.0	5.0
P4SMA68A	P4SMA68CA	68A	68CA	58.1	64.6	71.4	1.0	92.0	4.6	5.0
P4SMA75A	P4SMA75CA	75A	75CA	64.1	71.3	78.8	1.0	103	4.1	5.0
P4SMA82A	P4SMA82CA	82A	82CA	70.1	77.9	86.1	1.0	113	3.7	5.0
P4SMA91A	P4SMA91CA	91A	91CA	77.8	86.5	95.5	1.0	125	3.4	5.0
P4SMA100A	P4SMA100CA	100A	100CA	85.5	95.0	105	1.0	137	3.1	5.0
P4SMA110A	P4SMA110CA	110A	110CA	94.0	105	116	1.0	152	2.8	5.0
P4SMA120A	P4SMA120CA	120A	120CA	102	114	126	1.0	165	2.5	5.0
P4SMA130A	P4SMA130CA	130A	130CA	111	124	137	1.0	179	2.3	5.0
P4SMA150A	P4SMA150CA	150A	150CA	128	143	158	1.0	207	2.0	5.0
P4SMA160A	P4SMA160CA	160A	160CA	136	152	168	1.0	219	1.9	5.0
P4SMA170A	P4SMA170CA	170A	170CA	145	162	179	1.0	234	1.8	5.0
P4SMA180A	P4SMA180CA	180A	180CA	154	171	189	1.0	246	1.7	5.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RMW}
(Uni)	(Bi)	(Uni)	(Bi)	$V_{RMW}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4SMA200A	P4SMA200CA	200A	200CA	171	190	210	1.0	274	1.53	5.0
P4SMA220A	P4SMA220CA	220A	220CA	185	209	231	1.0	328	1.22	5.0
P4SMA250A	P4SMA250CA	250A	250CA	214	237	263	1.0	344	1.16	5.0
P4SMA300A	P4SMA300CA	300A	300CA	256	285	315	1.0	414	0.97	5.0
P4SMA350A	P4SMA350CA	350A	350CA	300	333	368	1.0	482	0.83	5.0
P4SMA400A	P4SMA400CA	400A	400CA	342	380	420	1.0	548	0.73	5.0
P4SMA440A	P4SMA440CA	440A	440CA	376	418	462	1.0	602	0.65	5.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

Rating and characteristic curves

Fig.1 - PEAK PULSE POWER RATING CURVE

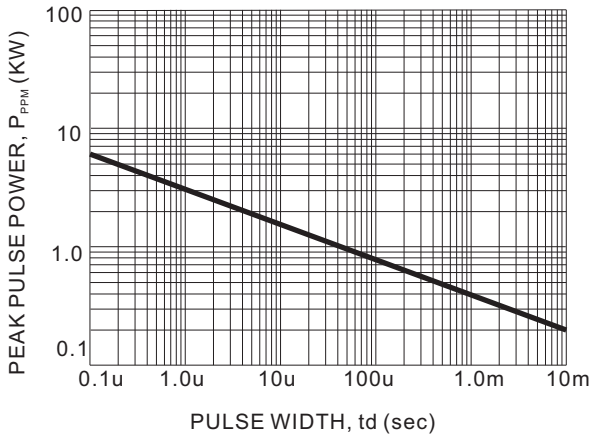


Fig.2 - PULSE DERATING CURVE

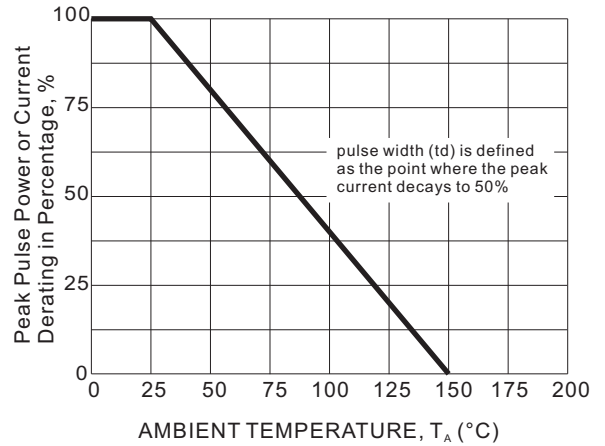


Fig.3 - Pulse Waveform

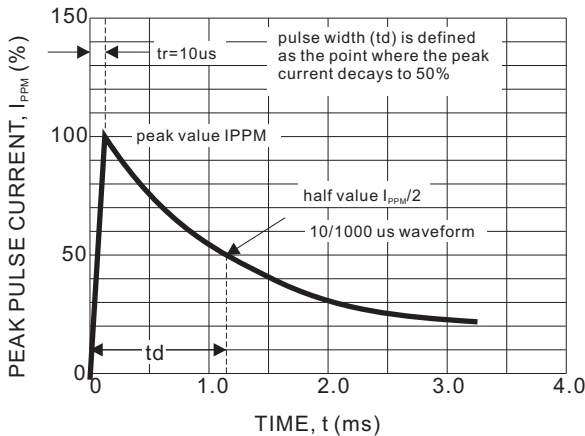


Fig.4 - Typical Junction Capacitance

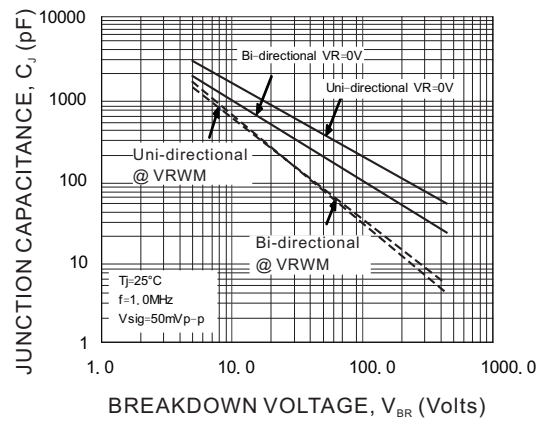


Fig.5 - STEADY STATE POWER DERATING CURVE

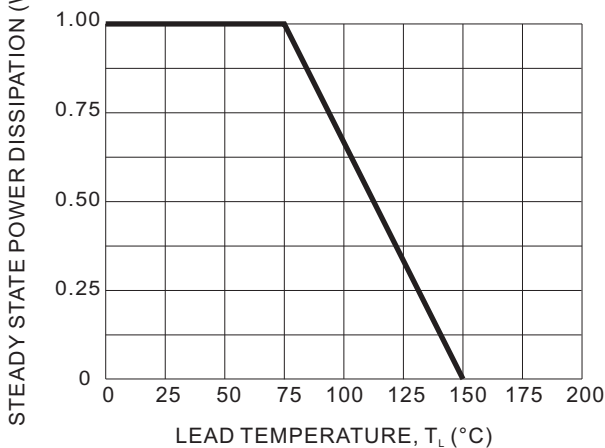
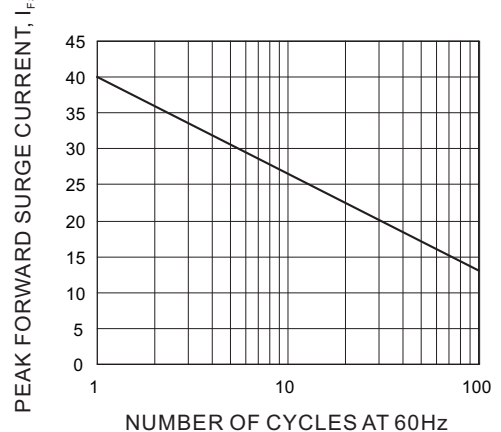






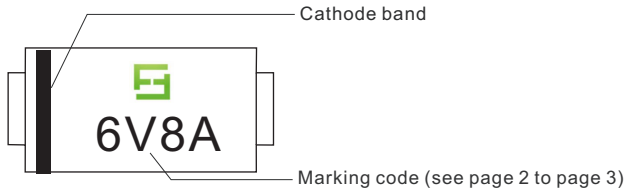
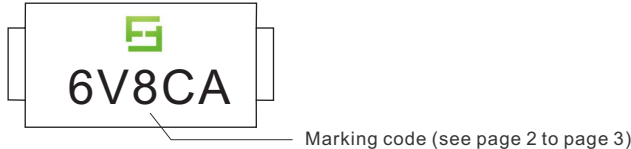
Fig.6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



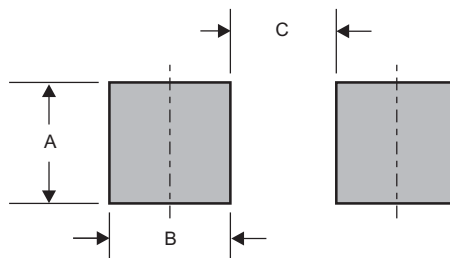
Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		
Bi-Directional		

Marking

Type number	Example
Uni-Directional	
Bi-Directional	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMA	0.063 (1.60)	0.059 (1.50)	0.110 (2.80)