

Power TVS in DO-214AB/SMC

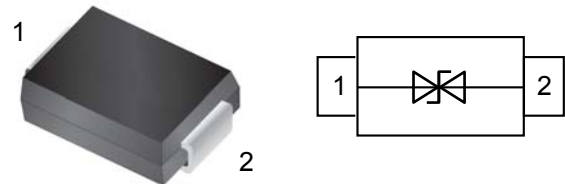
Features

- 1500Watts peak pulse power (10/1000μs)
- Class passivated junction
- High accuracy, 5% tolerance
- Uni and Bidirectional unit
- Low clamping voltage
- Low Leakage current
- Very fast response time

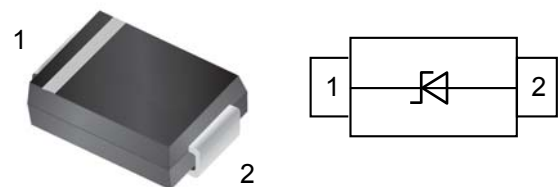
Mechanical Data

- **Case:** DO-214AB/SMC (plastic package).
Lead free; RoHS compliant; Halogen free
- **Molding Compound Flammability Rating:**
UL 94 V-0
- **Terminals:** High temperature soldering guaranteed:
260 °C/10 sec. at terminals

Bidirectional



Unidirectional



Applications

- Computers
- Telecom systems
- Industrial equipments
- Consumer electronic applications
- Other VCC bus and I/O interfaces

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbols	Value	Unit
Peak power dissipation with a 10/1000us waveform ⁽¹⁾ (Fig. 1)	P _{PPM}	1500	W
Peak pulse current with a 10/1000us waveform ⁽¹⁾	I _{PPM}	See Next Table	A
Steady state power dissipation at T _L =75 °C, lead lengths 0.375" (9.5mm) ⁽²⁾	P _{M(AV)}	6.5	W
Peak forward surge current 8.3ms single half sine-wave ⁽³⁾	I _{FSM}	200	A
Maximum instantaneous forward voltage @ 50A for unidirectional only ⁽⁴⁾	V _F	3.5/5.0	V
Typical thermal resistance junction-to-lead	R _{θJL}	20	°C/W
Typical thermal resistance junction-to-ambient	R _{θJA}	75	°C/W
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Notes:1.Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig. 2

2. Mounted on copper pad area of 1.6 x 1.6" (40 x 40mm) per Fig. 5

3. Meas ed on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

4. V_F=3.5 V for devices of V_(BR) < 220V, and V_F=5.0 Volt max. for devices of V_(BR)>220V

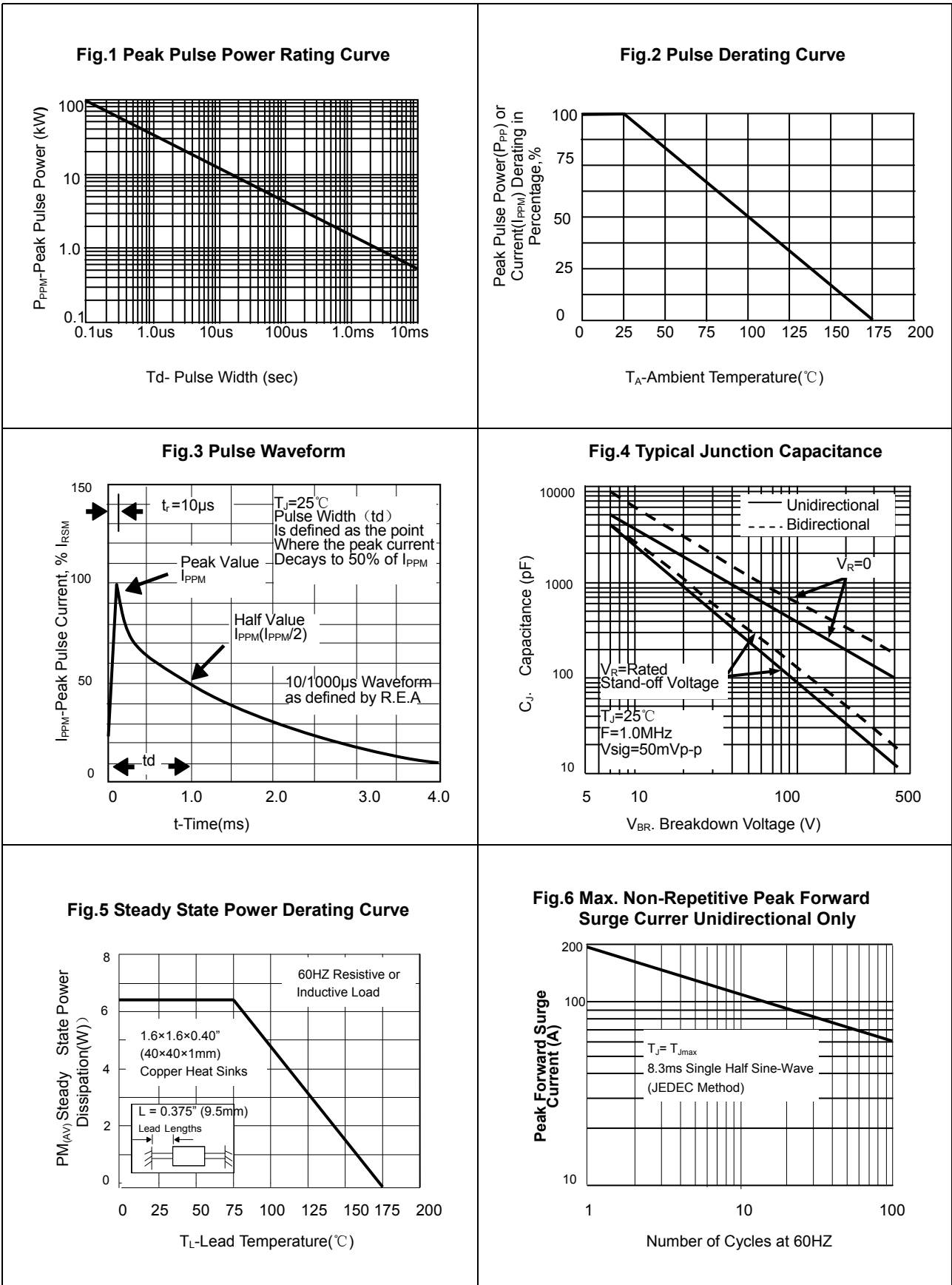
Electrical Characteristics (T_A=25°C, Unless otherwise specified.)

Device type	marking code		Breakdown voltage V _(BR) (Volts) ⁽¹⁾		Test current I _T (mA)	Stand-off voltage V _{WM} (Volts)	Maximum reverse leakage at V _{WM} I _D ⁽⁴⁾ (uA)	Maximum peak pulse current I _{PPM} ⁽²⁾ (A)	Maximum clamping voltage at I _{PPM} VC (Volts)	Maximum temperature coefficient of VBR (%/°C)
	UNI	BI	Min.	Max.						
1.5SMC6.8A	6V8A	6V8C	6.45	7.14	10	5.80	1000	143	10.5	0.057
1.5SMC7.5A	7V5A	7V5C	7.13	7.88	10	6.40	500	133	11.3	0.061
1.5SMC8.2A	8V2A	8V2C	7.79	8.61	10	7.02	200	124	12.1	0.065
1.5SMC9.1A	9V1A	9V1C	8.65	9.55	1.0	7.78	50	112	13.4	0.068
1.5SMC10A	10A	10C	9.50	10.5	1.0	8.55	10	103	14.5	0.073
1.5SMC11A	11A	11C	10.5	11.6	1.0	9.40	5.0	96.2	15.6	0.075
1.5SMC12A	12A	12C	11.4	12.6	1.0	10.2	5.0	89.8	16.7	0.078
1.5SMC13A	13A	13C	12.4	13.7	1.0	11.1	5.0	82.4	18.2	0.081
1.5SMC15A	15A	15C	14.3	15.8	1.0	12.8	1.0	70.8	21.2	0.084
1.5SMC16A	16A	16C	15.2	16.8	1.0	13.6	1.0	66.7	22.5	0.086
1.5SMC18A	18A	18C	17.1	18.9	1.0	15.3	1.0	59.5	25.2	0.089
1.5SMC20A	20A	20C	19.0	21.0	1.0	17.1	1.0	54.2	27.7	0.090
1.5SMC22A	22A	22C	20.9	23.1	1.0	18.8	1.0	49.0	30.6	0.092
1.5SMC24A	24A	24C	22.8	25.2	1.0	20.5	1.0	45.2	33.2	0.094
1.5SMC27A	27A	27C	25.7	28.4	1.0	23.1	1.0	40.0	37.5	0.096
1.5SMC30A	30A	30C	28.5	31.5	1.0	25.6	1.0	36.2	41.4	0.097
1.5SMC33A	33A	33C	31.4	34.7	1.0	28.2	1.0	32.8	45.7	0.098
1.5SMC36A	36A	36C	34.2	37.8	1.0	30.8	1.0	30.1	49.9	0.099
1.5SMC39A	39A	39C	37.1	41.0	1.0	33.3	1.0	27.8	53.9	0.100
1.5SMC43A	43A	43C	40.9	45.2	1.0	36.8	1.0	25.3	59.3	0.101
1.5SMC47A	47A	47C	44.7	49.4	1.0	40.2	1.0	23.1	64.8	0.101
1.5SMC51A	51A	51C	48.5	53.6	1.0	43.6	1.0	21.4	70.1	0.102
1.5SMC56A	56A	56C	53.2	58.8	1.0	47.8	1.0	19.5	77.0	0.103
1.5SMC62A	62A	62C	58.9	65.1	1.0	53.0	1.0	17.6	85.0	0.104
1.5SMC68A	68A	68C	64.6	71.4	1.0	58.1	1.0	16.3	92.0	0.104
1.5SMC75A	75A	75C	71.3	78.8	1.0	64.1	1.0	14.6	104	0.105
1.5SMC82A	82A	82C	77.9	86.1	1.0	70.1	1.0	13.3	113	0.105
1.5SMC91A	91A	91C	86.5	95.5	1.0	77.8	1.0	12.0	125	0.106
1.5SMC100A	100A	100C	95.0	105	1.0	85.5	1.0	10.9	137	0.106
1.5SMC110A	110A	110C	105	116	1.0	94.0	1.0	9.9	152	0.107
1.5SMC120A	120A	120C	114	126	1.0	102	1.0	9.1	165	0.107
1.5SMC130A	130A	130C	124	137	1.0	111	1.0	8.4	179	0.107
1.5SMC150A	150A	150C	143	158	1.0	128	1.0	7.2	207	0.106
1.5SMC160A	160A	160C	152	168	1.0	136	1.0	6.8	219	0.108
1.5SMC170A	170A	170C	162	179	1.0	145	1.0	6.4	234	0.108
1.5SMC180A	180A	180C	171	189	1.0	154	1.0	6.1	246	0.108
1.5SMC200A	200A	200C	190	210	1.0	171	1.0	5.5	274	0.108
1.5SMC220A	220A	220C	209	231	1.0	185	1.0	4.6	328	0.108
1.5SMC250A	250A	250C	237	263	1.0	214	1.0	4.4	344	0.108
1.5SMC300A	300A	300C	285	315	1.0	256	1.0	3.7	414	0.108
1.5SMC350A	350A	350C	332	368	1.0	300	1.0	3.2	482	0.108
1.5SMC400A	400A	400C	380	420	1.0	342	1.0	2.8	548	0.108

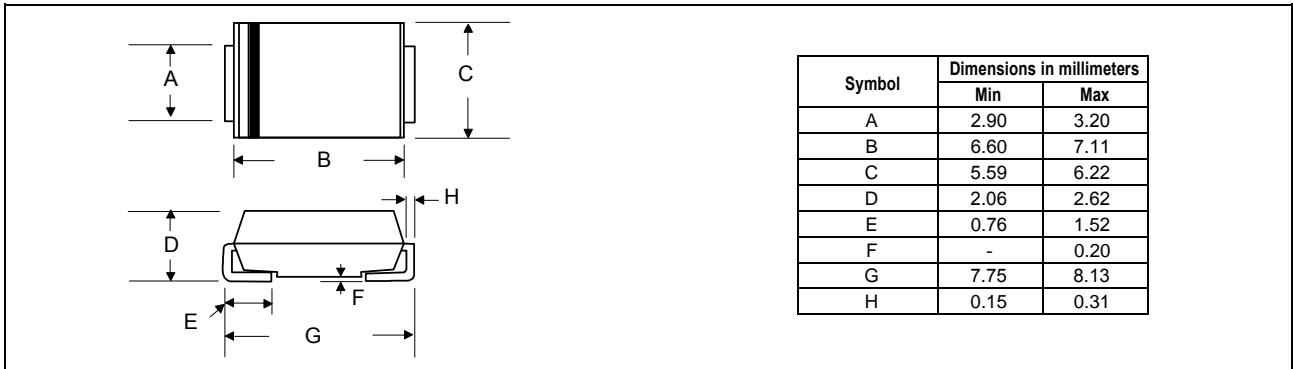
Device type	marking code		Breakdown voltage $V_{(BR)}$ (Volts) ⁽¹⁾		Test current at I_T (mA)	Stand-off voltage V_{WM} (Volts)	Maximum reverse leakage at V_{WM} $I_D^{(4)}$ (uA)	Maximum peak pulse current $I_{PPM}^{(2)}$ (A)	Maximum clamping voltage at I_{PPM} VC (Volts)	Maximum temperature coefficient of VBR (%/°C)
	UNI	BI	Min.	Max.						
1.5SMC440A	440A	440C	418	462	1.0	376	1.0	2.5	602	0.108
1.5SMC480A	480A	480C	456	504	1.0	408	1.0	2.3	658	0.108
1.5SMC510A	510A	510C	485	535	1.0	434	1.0	2.1	698	0.108
1.5SMC530A	530A	530C	503.5	556.5	1.0	477	1.0	2.1	725	0.108
1.5SMC540A	540A	540C	513	567	1.0	459	1.0	2.0	740	0.108

- Notes:**
1. $V_{(BR)}$ measured after I_T applied for 300us square wave pulse or equivalent
 2. Surge current waveform per Fig. 3 and derate per Fig. 2
 3. For bidirectional types with V_R 10 Volts and less, the I_D limit is doubled
 4. All terms and symbols are consistent with ANSI/IEEE C62.35

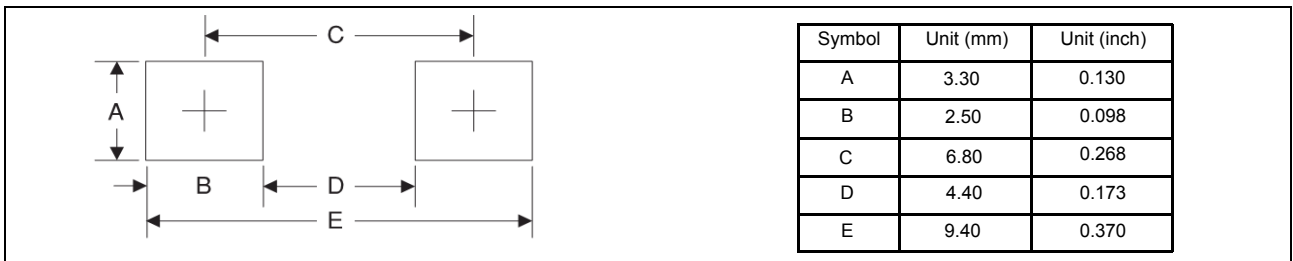
Typical Characteristics ($T_{amb} = 25^\circ\text{C}$ unless otherwise specified)



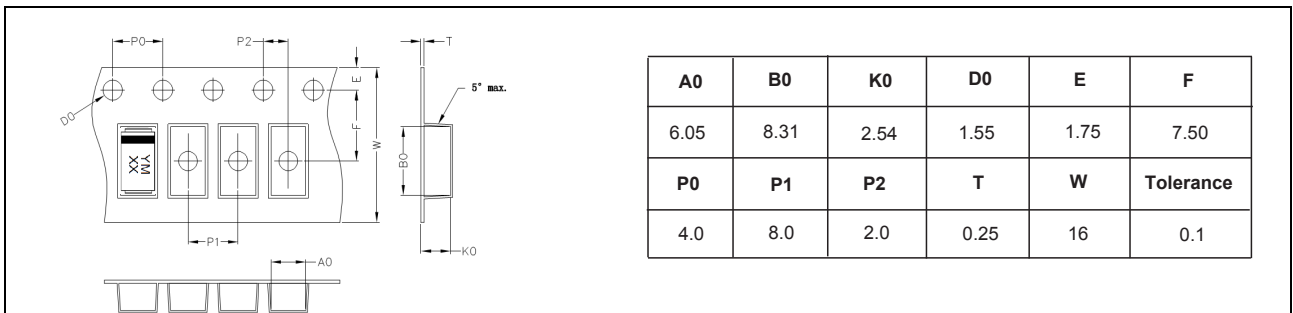
Package Dimensions



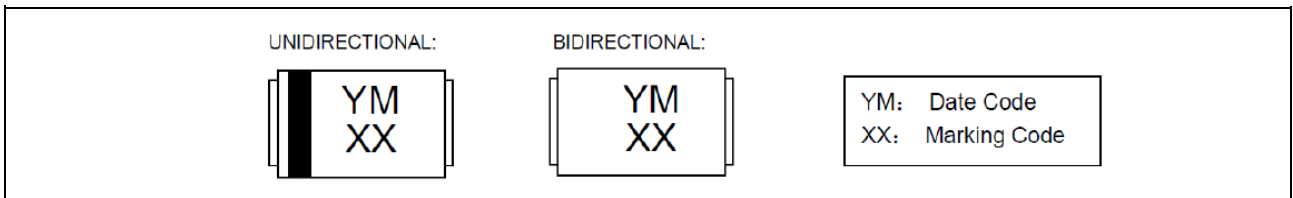
PAD Dimensions



Packing Information



Marking



Ordering information

Order code	Package	Packaging option	Base quantity	Packaging specification
1.5SMCxxA(CA)	DO-214AB/SMC	Tape and REEL	3000pcs	EIA STD RS-481

Revision history

Date	Revision	Changes
23-May-2020	1.0	Initial release

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