

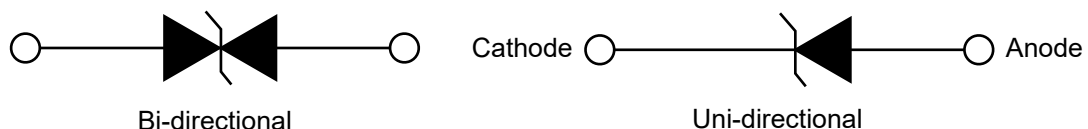
1.Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 600 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHE3 or P/NHM3
- IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4

2.Mechanical Data

- Case: SMB (DO-214AA)
Molding compound meets UL 94 V-0 flammability rating. Base P/N-E3 - RoHS-compliant, commercial grade. Base P/N-M3 - halogen-free, RoHS-compliant commercial grade. Base P/NHE3_X - RoHS-compliant. Base P/NHM3_X - halogen-free, RoHS-compliant, ("_X" denotes revision code e.g. A, B, and only available for 250 V to 540 V type)
- Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test
- Polarity: for uni-directional types the band denotes cathode end, no marking on bi-directional types

3.Pinning information



SMB



4. Absolute Maximum Ratings ($T_A=25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Units
Peak power dissipation with a 10/1000 μs waveform ⁽¹⁾⁽²⁾ (fig. 1)		P_{PPM}	600	W
Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only (Note 4)		V_F	3.5	Volts
Power dissipation on infinite heatsink at $T_A=50\text{ }^{\circ}\text{C}$		P_D	5	W
Peak forward surge current 8.3 ms single half sine-wave uni-directional only ⁽²⁾		I_{FSM}	100	A
Junction temperature and storage temperature range		T_J, T_{STG}	-65 to 150	$^{\circ}\text{C}$
IEC-61000-4-2 ESD	30kV(Air)			
	30kV (Contact)			

Notes:

(1) Non-repetitive current pulse, per fig. 3 and derated above $T_A=25\text{ }^{\circ}\text{C}$ per fig. 2.

(2) Mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal.



5. Electrical Characteristics ($T_A=25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PART NUMBER	DEVICE MARKIN GCODE		BREAKDOWN VOLTAGE VBR AT I_T (1)		TEST CURRENT	STAND -OFF VOLTAGE	MAXIMUM REVERSE LEAKAG AT V_{WM}	MAXIMUM PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE AT I_{PPM}	MAXIMUM TEMPERAT URE OF V_{BR}
					I_T	$V_{WM}(V)$	$I_R^{(3)}$	$I_{PPM}^{(2)}$		
	UNI	BI	MIN.	MAX.	(mA)		(μA)	(A)	$V_C(V)$	(%/°C)
P6SMB6.8A(CA)	6V8A	6V8C	6.45	7.14	10	5.8	1000	57.1	10.5	0.057
P6SMB7.5A(CA)	7V5A	7V5C	7.13	7.88	10	6.4	500	53.1	11.3	0.061
P6SMB8.2A(CA)	8V2A	8V2C	7.79	8.61	10	7.02	200	49.6	12.1	0.065
P6SMB9.1A(CA)	9V1A	9V1C	8.65	9.55	1	7.78	50	44.8	13.4	0.068
P6SMB10A(CA)	10A	10C	9.5	10.5	1	8.55	10	41.4	14.5	0.073
P6SMB11A(CA)	11A	11C	10.5	11.6	1	9.4	5	38.5	15.6	0.075
P6SMB12A(CA)	12A	12C	11.4	12.6	1	10.2	5	35.9	16.7	0.078
P6SMB13A(CA)	13A	13C	12.4	13.7	1	11.1	1	33	18.2	0.081
P6SMB15A(CA)	15A	15C	14.3	15.8	1	12.8	1	28.3	21.2	0.084
P6SMB16A(CA)	16A	16C	15.2	16.8	1	13.6	1	26.7	22.5	0.086
P6SMB18A(CA)	18A	18C	17.1	18.9	1	15.3	1	23.8	25.2	0.088
P6SMB20A(CA)	20A	20C	19	21	1	17.1	1	21.7	27.7	0.09
P6SMB22A(CA)	22A	22C	20.9	23.1	1	18.8	1	19.6	30.6	0.092
P6SMB24A(CA)	24A	24C	22.8	25.2	1	20.5	1	18.1	33.2	0.094
P6SMB27A(CA)	27A	27C	25.7	28.4	1	23.1	1	16	37.5	0.096
P6SMB30A(CA)	30A	30C	28.5	31.5	1	25.6	1	14.5	41.4	0.097
P6SMB33A(CA)	33A	33C	31.4	34.7	1	28.2	1	13.1	45.7	0.098
P6SMB36A(CA)	36A	36C	34.2	37.8	1	30.8	1	12	49.9	0.099
P6SMB39A(CA)	39A	39C	37.1	41	1	33.3	1	11.1	53.9	0.1
P6SMB43A(CA)	43A	43C	40.9	45.2	1	36.8	1	10.1	59.3	0.101
P6SMB47A(CA)	47A	47C	44.7	49.4	1	40.2	1	9.3	64.8	0.101
P6SMB51A(CA)	51A	51C	48.5	53.6	1	43.6	1	8.6	70.1	0.102



P6SMB56A(CA)	56A	56C	53.2	58.8	1	47.8	1	7.8	77	0.103
P6SMB62A(CA)	62A	62C	58.9	65.1	1	53	1	7.1	85	0.104
P6SMB68A(CA)	68A	68C	64.6	71.4	1	58.1	1	6.5	92	0.104
P6SMB75A(CA)	75A	75C	71.3	78.8	1	64.1	1	5.8	103	0.105
P6SMB82A(CA)	82A	82C	77.9	86.1	1	70.1	1	5.3	113	0.105
P6SMB91A(CA)	91A	91C	86.5	95.5	1	77.8	1	4.8	125	0.106
P6SMB100A(CA)	100A	100C	95	105	1	85.5	1	4.4	137	0.106
P6SMB110A(CA)	110A	110C	105	116	1	94	1	3.9	152	0.107
P6SMB120A(CA)	120A	120C	114	126	1	102	1	3.6	165	0.107
P6SMB130A(CA)	130A	130C	124	137	1	111	1	3.4	179	0.107
P6SMB150A(CA)	150A	150C	143	158	1	128	1	2.9	207	0.108
P6SMB160A(CA)	160A	160C	152	168	1	136	1	2.7	219	0.108
P6SMB170A(CA)	170A	170C	162	179	1	145	1	2.6	234	0.108
P6SMB180A(CA)	180A	180C	171	189	1	154	1	2.4	246	0.108
P6SMB200A(CA)	200A	200C	190	210	1	171	1	2.2	274	0.108
P6SMB220A(CA)	220A	220C	209	231	1	185	1	1.8	328	0.108
P6SMB250A(CA)	250A		237	263	1	214	1	1.74	344	0.11
P6SMB300A(CA)	300A		285	315	1	256	1	1.45	414	0.11
P6SMB350A(CA)	350A		333	368	1	300	1	1.24	482	0.11
P6SMB400A(CA)	400A		380	420	1	342	1	1.1	548	0.11
P6SMB440A(CA)	440A		418	462	1	376	1	1	602	0.11
P6SMB480A(CA)	480A		456	504	1	408	1	0.91	658	0.11
P6SMB510A(CA)	510A		485	535	1	434	1	0.86	698	0.11
P6SMB540A(CA)	540A		513	567	1	459	1	0.81	740	0.11

Notes:

- (1) Pulse test: $t_p \leq 50$ ms.
- (2) Surge current waveform per fig. 3 and derate per fig. 2.
- (3) For bi-directional types with V_{WM} of 10 V and less, the I_D limit is doubled.
- (4) All terms and symbols are consistent with ANSI/IEEE CA62.35.
- (5) $V_F = 3.5$ V at $I_F = 50$ A (uni-directional only).



6. Typical characteristic

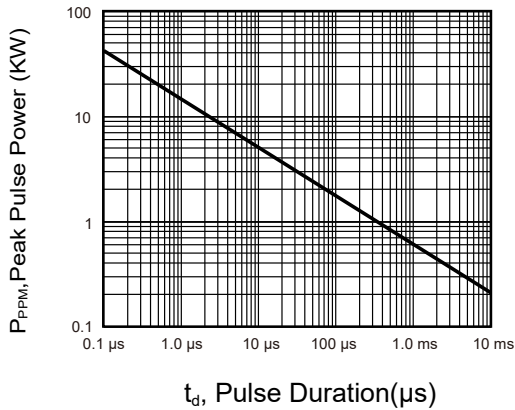


Figure 1: Peak Pulse Power Rating Curve

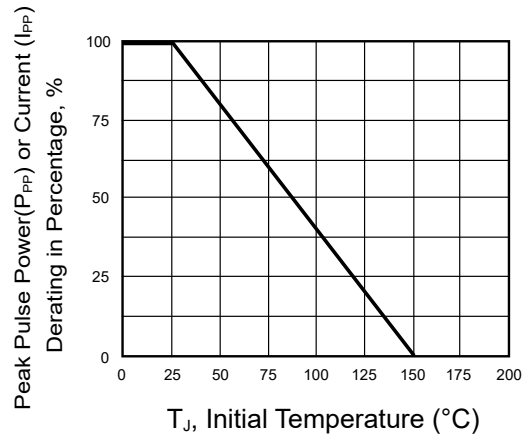


Figure 2: Pulse Power or Current vs. Initial Junction Temperature

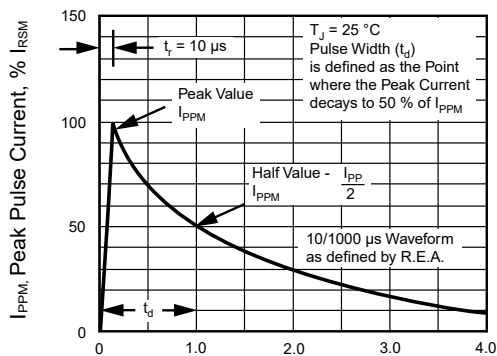


Figure 3: Pulse Waveform

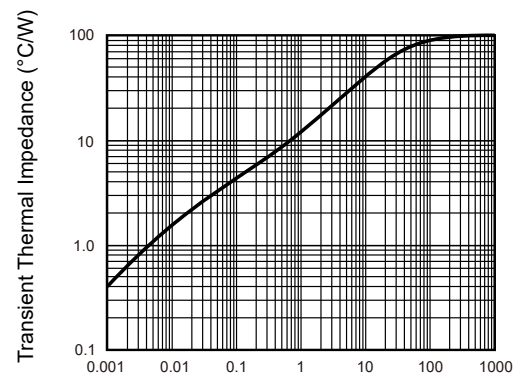


Figure 4: Typical Transient Thermal Impedance

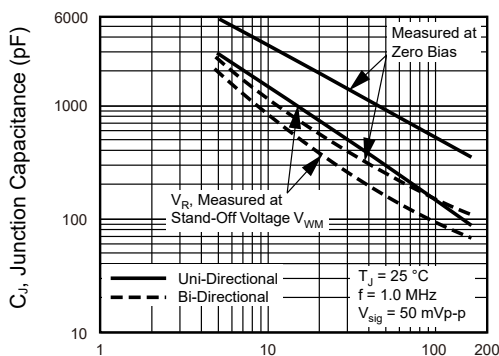


Figure 5: Typical Junction Capacitance

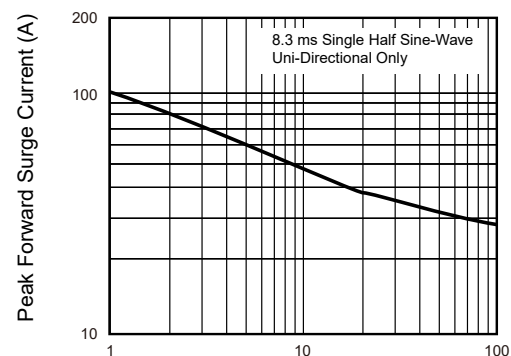
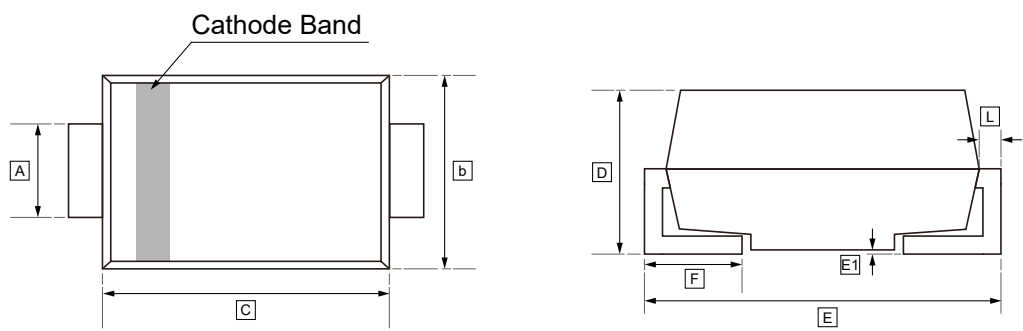


Figure 6: Maximum Non-Repetitive Peak Forward Surge Current



7.SMB Package Outline Dimensions

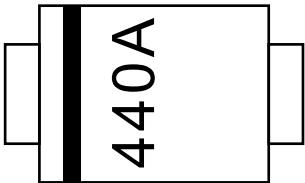


DIMENSIONS (mm are the original dimensions)

Symbol	A	b	C	D	E	E1	F	L
Min	1.95	3.30	4.06	2.13	5.10	0	0.76	0.152
Max	2.20	3.94	4.57	2.44	5.59	0.2	1.52	0.305



8.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMWP6SMBxxA	SMB	750	Tape and reel
UMWP6SMBxxCA	SMB	750	Tape and reel



9.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.