

MDE Semiconductor, Inc.

201 Shipyard Way, Unit C, Newport Beach, CA., USA 92663 Tel : 760-564-8656 • Fax : 760-564-2414
1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

M5KP SERIES

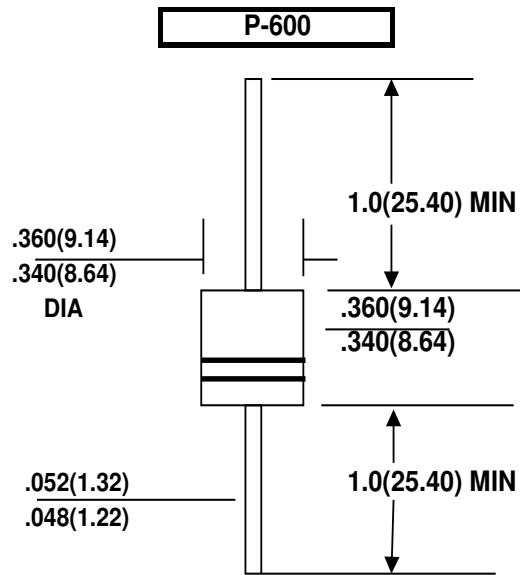
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE-5.0 TO 220.0 Volts 5000 Watt Peak Pulse Power

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O
- Glass passivated junction
- 5000W Peak Pulse Power capability on 10/1000 μ s waveform
- Glass passivated junction
- Low incremental surge resistance
- Excellent clamping capability
- Repetition rate (duty cycle): 0.05%
- Fast response time: typically less than 1.0 ps from 0 volts to BV
- Typical IR less than 1 μ A above 10V
- High temperature soldering guaranteed: 265°C/10 seconds/ .375", (9.5mm) lead length, 5lbs., (2.3kg) tension

MECHANICAL DATA

Case: Molded plastic over glass passivated junction
 Terminals: Plated Axial leads, solderable per MIL-STD-750, Method 2026
 Polarity: Color band denoted positive end (cathode) except Bipolar
 Mounting Position: Any
 Weight: 0.07 ounces, 2.1 gram



Dimensions in inches (millimeters)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types M5KP5.0 thru types M5KP220 (e.g. M5KP5.0C, M5KP220CA) Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 μ s waveform (NOTE 1, Fig.1)	P_{PPM}	Minimum 5000	Watts
Peak Pulse Current of on 10/1000 μ s waveform (Note 1, Fig 3)	I_{PPM}	SEE TABLE 1	Amps
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead lengths .375", 9.5mm (Note 2)	$P_{M(AV)}$	8.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method)(Note 3)	I_{FSM}	400	Amps
Operatings and Storage Temperature Range	T_J, T_{STG}	-55 +175	°C

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_a=25^\circ\text{C}$ per Fig.2.
2. Mounted on Copper Pad area of 0.8x0.8" (20x20mm) per Fig.5.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

Certified RoHS Compliant

UL File # E223026

12/22/2021

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RATING AND CHARACTERISTIC CURVES M5KP SERIES

Fig. 1 - Peak Pulse Power Rating Curve

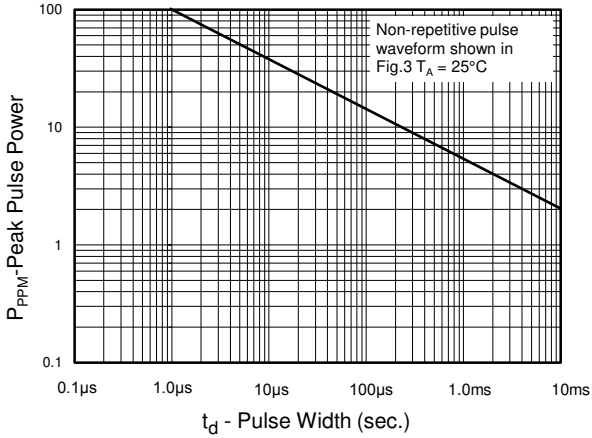


Fig.2 - Pulse Derating Curve

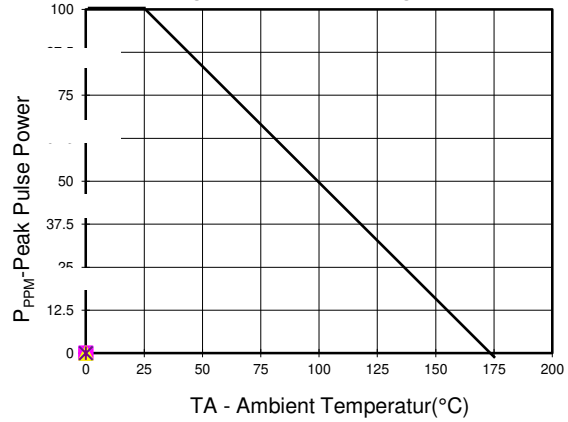


Fig.3 - Pulse Waveform

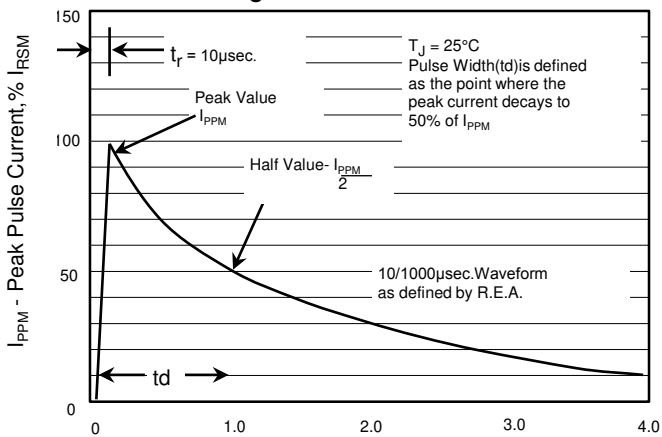


Fig. 4 - Typical Junction Capacitance

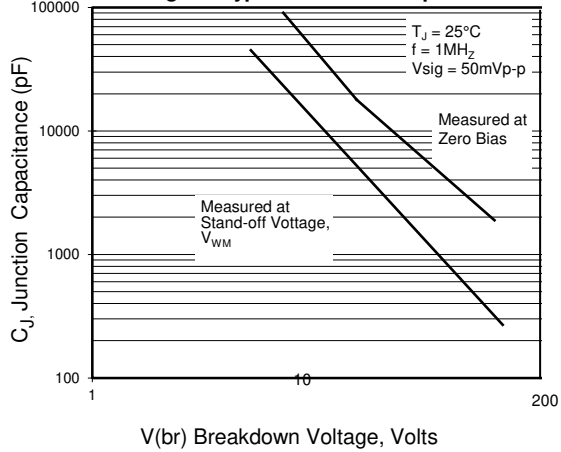


Fig. 5 - Steady State Power Derating Curve

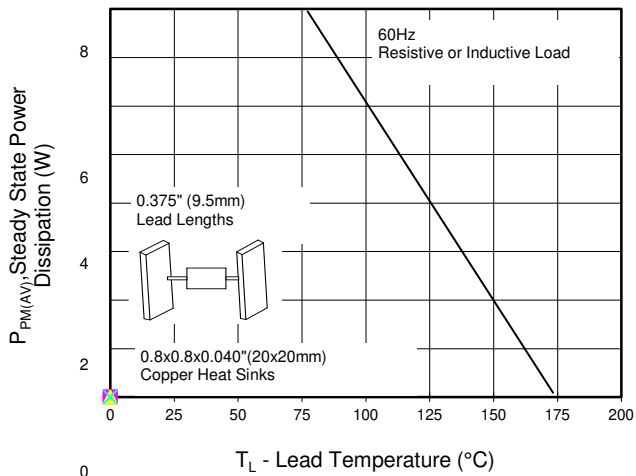
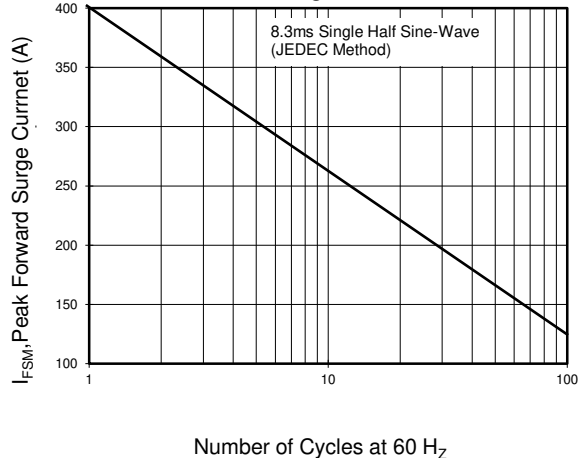


Fig.6 - Maximum Non-repetitive Forward Surge current



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5000 Watt TVS

UNI-POLAR	BI-POLAR	REVERSE STANDOFF VOLTAGE V _{RWM} (V)	BREAKDOWN VOLTAGE V _{BR} (V) MIN. @ I _T	BREAKDOWN VOLTAGE V _{BR} (V) MAX. @ I _T	TEST CURRENT (I _T) mA	MAXIMUM CLAMPING VOLTAGE @I _{PP} V _C (V)	PEAK PULSE CURRENT I _{PP} (A)	REVERSE LEAKAGE @ V _{RWM} I _R (μA)
M5KP5.0A	M5KP5.0CA	5.00	6.40	7.00	50	9.2	544.0	5000
M5KP6.0A	M5KP6.0CA	6.00	6.67	7.37	50	10.3	486.0	5000
M5KP6.5A	M5KP6.5CA	6.50	7.22	7.98	50	11.2	447.0	2000
M5KP7.0A	M5KP7.0CA	7.00	7.78	8.60	50	12.0	417.0	1000
M5KP7.5A	M5KP7.5CA	7.50	8.33	9.21	5	12.9	388.0	250
M5KP8.0A	M5KP8.0CA	8.00	8.89	9.83	5	13.6	368.0	150
M5KP8.5A	M5KP8.5CA	8.50	9.44	10.40	5	14.4	348.0	50
M5KP9.0A	M5KP9.0CA	9.00	10.00	11.10	5	15.4	325.0	20
M5KP10A	M5KP10CA	10.00	11.10	12.30	5	17.0	295.0	15
M5KP11A	M5KP11CA	11.00	12.20	13.50	5	18.2	275.0	10
M5KP12A	M5KP12CA	12.00	13.30	14.70	5	19.9	252.0	10
M5KP13A	M5KP13CA	13.00	14.40	15.90	5	21.5	233.0	10
M5KP14A	M5KP14CA	14.00	15.60	17.20	5	23.2	216.0	10
M5KP15A	M5KP15CA	15.00	16.70	18.50	5	24.4	205.0	10
M5KP16A	M5KP16CA	16.00	17.80	19.70	5	26.0	193.0	10
M5KP17A	M5KP17CA	17.00	18.90	20.90	5	27.6	181.0	10
M5KP18A	M5KP18CA	18.00	20.00	22.10	5	29.2	172.0	10
M5KP20A	M5KP20CA	20.00	22.20	24.50	5	32.4	154.0	10
M5KP22A	M5KP22CA	22.00	24.40	26.90	5	35.5	141.0	10
M5KP24A	M5KP24CA	24.00	26.70	29.50	5	38.9	129.0	10
M5KP26A	M5KP26CA	26.00	28.90	31.90	5	42.1	119.0	10
M5KP28A	M5KP28CA	28.00	31.10	34.40	5	45.4	110.0	10
M5KP30A	M5KP30CA	30.00	33.30	36.80	5	48.4	103.0	10
M5KP33A	M5KP33CA	33.00	36.70	40.60	5	53.3	93.9	10
M5KP36A	M5KP36CA	36.00	40.00	44.20	5	58.1	86.1	10
M5KP40A	M5KP40CA	40.00	44.40	49.10	5	64.5	77.6	10
M5KP43A	M5KP43CA	43.00	47.80	52.80	5	69.4	72.1	10
M5KP45A	M5KP45CA	45.00	50.00	55.30	5	72.7	68.8	10
M5KP48A	M5KP48CA	48.00	53.30	58.90	5	77.4	64.7	10
M5KP51A	M5KP51CA	51.00	56.70	62.70	5	82.4	60.7	10
M5KP54A	M5KP54CA	54.00	60.00	66.30	5	87.1	57.5	10
M5KP58A	M5KP58CA	58.00	64.40	71.20	5	93.6	53.5	10
M5KP60A	M5KP60CA	60.00	66.70	73.70	5	96.8	51.7	10
M5KP64A	M5KP64CA	64.00	71.10	78.60	5	103.0	48.6	10
M5KP70A	M5KP70CA	70.00	77.80	86.00	5	113.0	44.3	10
M5KP75A	M5KP75CA	75.00	83.30	92.10	5	121.0	41.4	10
M5KP78A	M5KP78CA	78.00	86.70	95.80	5	126.0	39.7	10
M5KP85A	M5KP85CA	85.00	94.40	104.00	5	137.0	36.5	10
M5KP90A	M5KP90CA	90.00	100.00	111.00	5	146	34.3	10
M5KP100A	M5KP100CA	100.00	111.00	123.00	5	162	30.9	10
M5KP110A	M5KP110CA	110.00	122.00	135.00	5	177	28.3	10
M5KP120A	M5KP120CA	120.00	133.00	147.00	5	193	26.0	10
M5KP130A	M5KP130CA	130.00	144.00	159.00	5	209	24.0	10
M5KP150A	M5KP150CA	150.00	167.00	185.00	5	243	20.6	10
M5KP160A	M5KP160CA	160.00	178.00	197.00	5	259	19.3	10
M5KP170A	M5KP170CA	170.00	189.00	209.00	5	275	18.2	10
M5KP180A	M5KP180CA	180.00	200.00	233.00	5	289	17.6	10
M5KP190A	M5KP190CA	190.00	211.00	233.00	5	310	9.7	10
M5KP200A	M5KP200CA	200.00	222.00	246.00	5	329.2	9.1	10
M5KP210A	M5KP210CA	210.00	233.00	258.00	5	349.5	8.6	10
M5KP220A	M5KP220CA	220.00	244.00	270.00	5	371.1	8.1	10

For bidirectional type having V_{rwm} of 10 volts and less, the I_R limit is double.

For parts without A, the V_{BR} is + 10%