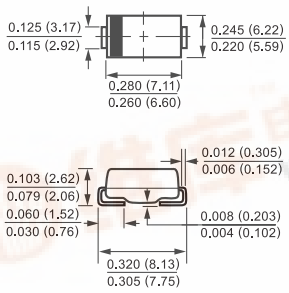
RECTRON
SEMICONDUCTOR
TECHNICAL SPECIFICATION

TVS
TFMCJ
SERIES

GPP TRANSIENT VOLTAGE SUPPRESSOR
1500 WATT PEAK POWER 1.0 WATT STEADY STATE

FEATURES
* Plastic package has underwriters laboratory
* Glass passivated chip construction
* 1500 watt surage capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time

DO-214AB



Dimensions in inches and (millimeters)

Ratings at 25 °C ambient temperature unless otherwise specified.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS
Ratings at 25 °C ambient temperature unless otherwise specified.

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix for types TFMCJ5.0 thru TFMCJ170

Electrical characteristics apply in both direction

MAXIMUM RATINGS (At T_A = 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation with a 10/1000uS (Note 1,2, Fig.1)	P_{PPM}	Minimum 1500	Watts
Peak Pulse Current with a 10/1000uS waveform (Note 1, Fig.3)	I_{PPM}	SEE TABLE 1	Amps
Steady State Power Dissipation at T_L = 75°C (Note 2)	$P_{M(AV)}$	5.0	Watts
Peak Forward Surge Current 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 2,3) unidirectional only	I_{FSM}	100	Amps
Maximum Instantaneous Forward Voltage at 100A for unidirectional only (Note 3,4)	V_F	SEE NOTE 3,4	Volts
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C

1998-8

NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig.2.
2. Mounted on 0.31 X 0.31"(8.0 X 8.0mm) copper pad to each terminal.
3. Lead temperature at T_L = 25°C
4. Measured on 8.3mS single half sine-wave duty cycle = 4 pules per minute maximum.
5. V_F = 3.5V on TFMCJ-5.0 thru TFMCJ-90 devices and V_F = 5.0V on TFMCJ-100 thru TFMCJ-170 devices.

RATING AND CHARACTERISTIC CURVES (TFMCJ5.0 THRU TFMCJ170CA)

FIG. 1 - PEAK PULSE POWER RATING CURVE

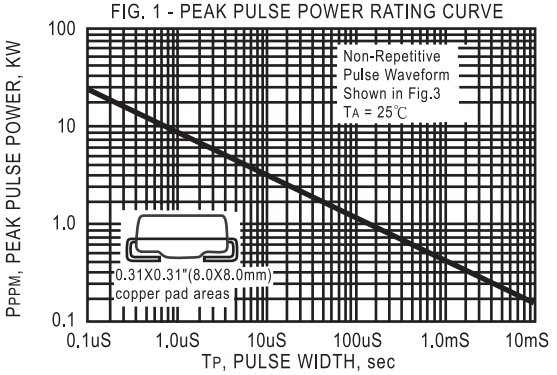


FIG. 2 - PULSE DERATING CURVE

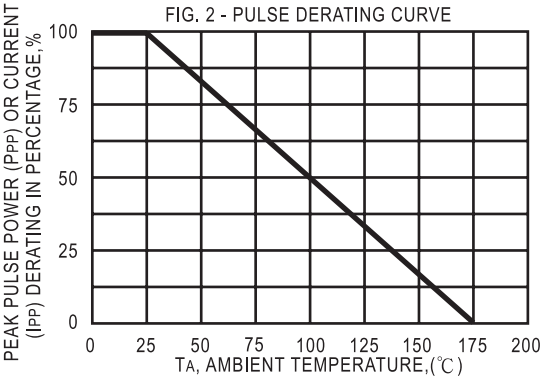


FIG. 3 - PULSE WAVEFORM

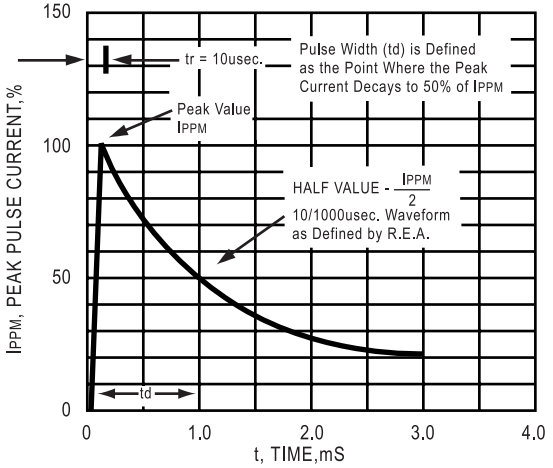


FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

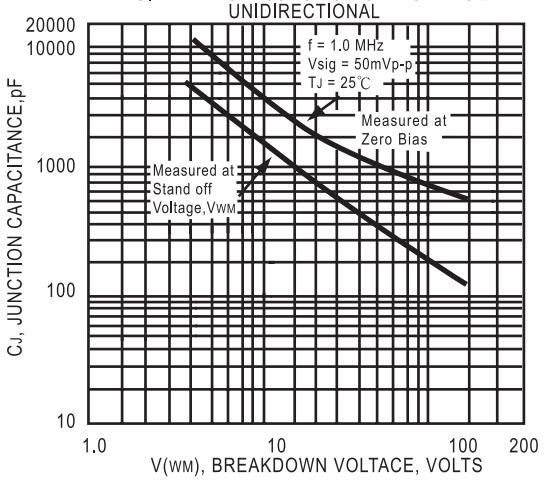


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

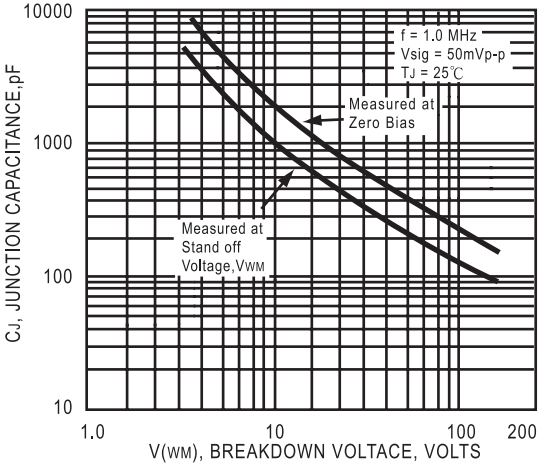
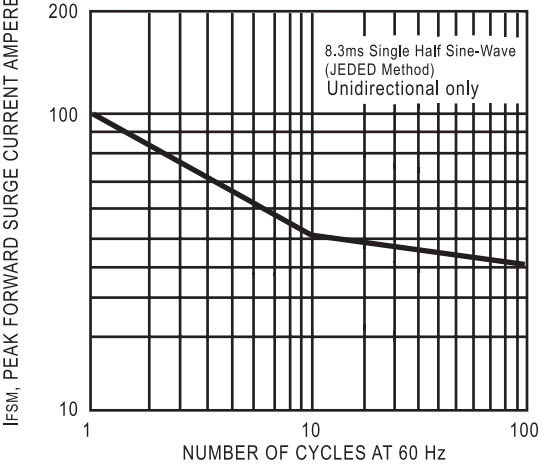


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES／ DO-214AB (CASE 4) 1500W

TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T				
	MIN.	MAX.	(mA)				
TFMCJ5.0	6.40	7.30	10	5.0	1000	164.0	9.6
TFMCJ5.0A	6.40	7.00	10	5.0	1000	171.0	9.2
TFMCJ6.0	6.67	8.15	10	6.0	1000	138.0	11.4
TFMCJ6.0A	6.67	7.37	10	6.0	1000	152.0	10.3
TFMCJ6.5	7.22	8.82	10	6.5	500.0	128.0	12.3
TFMCJ6.5A	7.22	7.98	10	6.5	500.0	140.0	11.2
TFMCJ7.0	7.78	9.51	10	7.0	200.0	118.0	13.3
TFMCJ7.0A	7.78	8.86	10	7.0	200.0	131.0	12.0
TFMCJ7.5	8.33	10.2	1.0	7.5	100.0	110.0	14.3
TFMCJ7.5A	8.33	9.21	1.0	7.5	100.0	122.0	12.9
TFMCJ8.0	8.89	10.9	1.0	8.0	50.0	105.0	15.0
TFMCJ8.0A	8.89	9.83	1.0	8.0	50.0	115.0	13.6
TFMCJ8.5	9.44	11.5	1.0	8.5	25	99.0	15.9
TFMCJ8.5A	9.44	10.4	1.0	8.5	25	109.0	14.4
TFMCJ9.0	10.0	12.2	1.0	9.0	10	93.0	16.9
TFMCJ9.0A	10.0	15.0	1.0	9.0	10	102.0	15.4
TFMCJ10	11.1	13.6	1.0	10.0	5.0	83.0	18.8
TFMCJ10A	11.1	12.3	1.0	10.0	5.0	92.0	17.0
TFMCJ11	12.2	14.9	1.0	11.0	5.0	78.0	20.1
TFMCJ11A	12.2	13.5	1.0	11.0	5.0	86.0	18.2
TFMCJ12	13.3	16.3	1.0	12.0	5.0	71.0	22.0
TFMCJ12A	13.3	14.7	1.0	12.0	5.0	79.0	19.9
TFMCJ13	14.4	17.6	1.0	13.0	5.0	66.0	23.8
TFMCJ13A	14.4	15.9	1.0	13.0	5.0	73.0	21.5
TFMCJ14	15.6	19.1	1.0	14.0	5.0	61.0	25.8
TFMCJ14A	15.6	17.2	1.0	14.0	5.0	67.0	23.2
TFMCJ15	16.7	20.4	1.0	15.0	5.0	58.0	26.9
TFMCJ15A	16.7	18.5	1.0	15.0	5.0	64.0	24.4
TFMCJ16	17.8	21.8	1.0	16.0	5.0	54.0	28.8
TFMCJ16A	17.8	19.7	1.0	16.0	5.0	60.0	26.0
TFMCJ17	18.9	23.1	1.0	17.0	5.0	51.0	30.5
TFMCJ17A	18.9	20.9	1.0	17.0	5.0	57.0	27.6
TFMCJ18	20.0	24.2	1.0	18.0	5.0	48.0	32.2
TFMCJ18A	20.0	22.1	1.0	18.0	5.0	53.0	29.2
TFMCJ20	22.2	27.1	1.0	20.0	5.0	43.0	35.8
TFMCJ20A	22.2	24.5	1.0	20.0	5.0	48.0	32.4
TFMCJ22	24.4	29.8	1.0	22.0	5.0	39.0	39.4
TFMCJ22A	24.4	26.9	1.0	22.0	5.0	44.0	35.5
TFMCJ24	26.7	32.6	1.0	24.0	5.0	36.0	43.0
TFMCJ24A	26.7	29.5	1.0	24.0	5.0	40.0	38.9
TFMCJ26	28.9	35.3	1.0	26.0	5.0	33.0	46.6
TFMCJ26A	28.9	31.9	1.0	26.0	5.0	37.0	42.1
TFMCJ28	31.1	38.0	1.0	28.0	5.0	31.0	50.1
TFMCJ28A	31.1	34.4	1.0	28.0	5.0	34.0	45.4
TFMCJ30	33.3	40.7	1.0	30.0	5.0	29.0	53.5
TFMCJ30A	33.3	36.8	1.0	30.0	5.0	32.0	48.4
TFMCJ33	36.7	44.9	1.0	33.0	5.0	26.0	59.0
TFMCJ33A	36.7	40.6	1.0	33.0	5.0	29.0	53.3
TFMCJ36	40.0	48.9	1.0	36.0	5.0	24.0	64.3
TFMCJ36A	40.0	44.2	1.0	36.0	5.0	27.0	58.1

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TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T				
	MIN.	MAX.	(mA)				
TFMCJ40	44.4	54.3	1.0	40	5.0	22.0	71.4
TFMCJ40A	44.4	49.1	1.0	40	5.0	24.0	64.5
TFMCJ43	47.8	58.4	1.0	43	5.0	20.0	76.7
TFMCJ43A	47.8	52.8	1.0	43	5.0	22.0	69.4
TFMCJ45	50.0	61.1	1.0	45	5.0	19.0	80.3
TFMCJ45A	50.0	55.3	1.0	45	5.0	21.0	72.7
TFMCJ48	53.3	65.1	1.0	48	5.0	18.0	85.5
TFMCJ48A	53.3	58.9	1.0	48	5.0	20.0	77.4
TFMCJ51	56.7	69.3	1.0	51	5.0	17.0	91.1
TFMCJ51A	56.7	62.7	1.0	51	5.0	19.0	82.4
TFMCJ54	60.0	73.3	1.0	54	5.0	16.0	96.3
TFMCJ54A	60.0	66.3	1.0	54	5.0	18.0	87.1
TFMCJ58	64.4	78.7	1.0	58	5.0	15.0	103
TFMCJ58A	64.4	71.2	1.0	58	5.0	16.0	93.6
TFMCJ60	66.7	81.5	1.0	60	5.0	14.0	107
TFMCJ60A	66.7	73.7	1.0	60	5.0	16.0	96.8
TFMCJ64	71.1	86.9	1.0	64	5.0	13.8	114
TFMCJ64A	71.1	78.6	1.0	64	5.0	15.0	103
TFMCJ70	77.8	95.1	1.0	70	5.0	12.6	125
TFMCJ70A	77.8	86.0	1.0	70	5.0	13.9	113
TFMCJ75	83.3	102	1.0	75	5.0	11.7	134
TFMCJ75A	83.3	92.1	1.0	75	5.0	13.0	121
TFMCJ78	86.7	106	1.0	78	5.0	11.3	139
TFMCJ78A	86.7	95.8	1.0	78	5.0	12.5	126
TFMCJ85	94.4	115	1.0	85	5.0	10.4	151
TFMCJ85A	94.4	104	1.0	85	5.0	11.5	137
TFMCJ90	100	122	1.0	90	5.0	9.8	160
TFMCJ90A	100	111	1.0	90	5.0	10.7	146
TFMCJ100	110	136	1.0	100	5.0	8.8	179
TFMCJ100A	110	123	1.0	100	5.0	9.7	162
TFMCJ110	122	149	1.0	110	5.0	8.0	196
TFMCJ110A	122	135	1.0	110	5.0	8.9	177
TFMCJ120	133	163	1.0	120	5.0	7.3	214
TFMCJ120A	133	147	1.0	120	5.0	8.1	193
TFMCJ130	144	176	1.0	130	5.0	6.8	231
TFMCJ130A	144	159	1.0	130	5.0	7.5	209
TFMCJ150	167	204	1.0	150	5.0	5.8	268
TFMCJ150A	167	185	1.0	150	5.0	6.4	243
TFMCJ160	178	218	1.0	160	5.0	5.4	287
TFMCJ160A	178	197	1.0	160	5.0	6.0	259
TFMCJ170	189	231	1.0	170	5.0	5.1	304
TFMCJ170A	189	209	1.0	170	5.0	5.7	275

NOTES : 1. V_{BR} measured after I_T applied for 300ms. I_T = square pluse or equivalent.
2. For bidirectional use C or CA suffixs for all types (ex. TFMCJ5.0C,TFMCJ170CA) electrical characteristics apply in both directions.
3. For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled.