

# ***MDE Semiconductor, Inc.***

78-150 Calle Tampico, Unit 210, La Quinta, CA. U.S.A. 92253 Tel: 760-564-8656 • Fax: 760-564-2414

1-800-831-4881 Email: sales@mdesemiconductor.com Web: www.mdesemiconductor.com

## **MAX™ 20 Series**

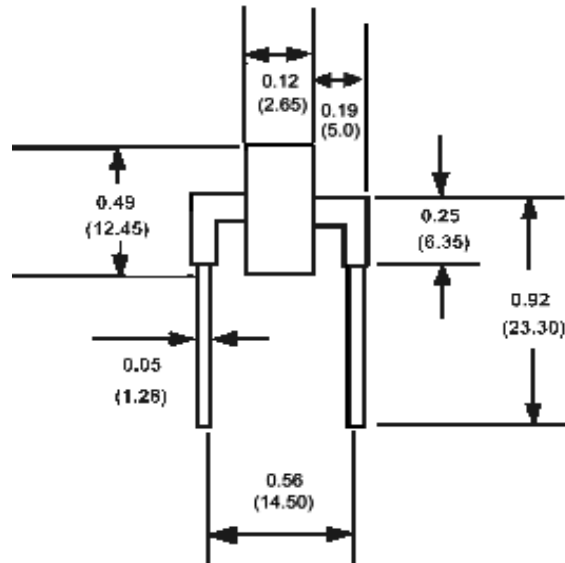
### **HIGH CURRENT TRANSIENT VOLTAGE SUPPRESSOR (TVS) DIODE**

**VOLTAGE - 5.0 to 150.0 Volts**

**20000 Watt Peak Pulse Power**

#### **FEATURES**

- Glass passivated junction
- Bidirectional
- 20000W Peak Pulse Power capability on 10/1000  $\mu$ sec waveform
- Excellent clamping capability
- Repetition rate (duty cycle):0.05%
- Sharp breakdown voltage
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV
- Typical IR less than 20 $\mu$ A above 10V
- High temperature soldering performance.



**Dimensions in inches  
and  
(Millimeters)**

#### **MECHANICAL DATA**

Terminals: Ag Plated Axial leads, solderable per MIL-STD-750, Method 2026

Mounting Position: Any

Weight: 1.49  $\pm$  0.149g (0.053  $\pm$  0.005 ounces)

#### **DEVICES FOR BIPOLAR APPLICATIONS**

Bidirectional use C or CA Suffix. 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 10x1000 $\mu$ sec waveform	Pppm	Minimum 20000	Watts
Peak Pulse Current of on 10-1000 $\mu$ sec waveform	Ippm	SEE CURVE	Amps

# MAXPak™ Series Curves

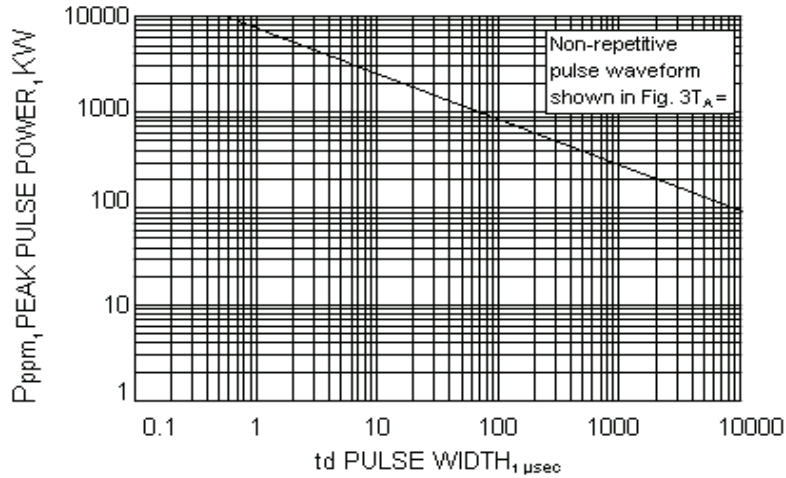


FIG. 1 PEAK PULSE POWER RATING

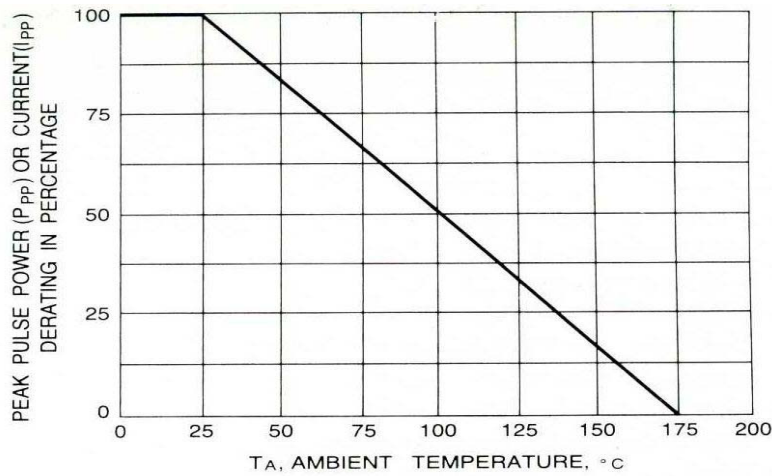


FIGURE 2-PULSE DERATING CURVE

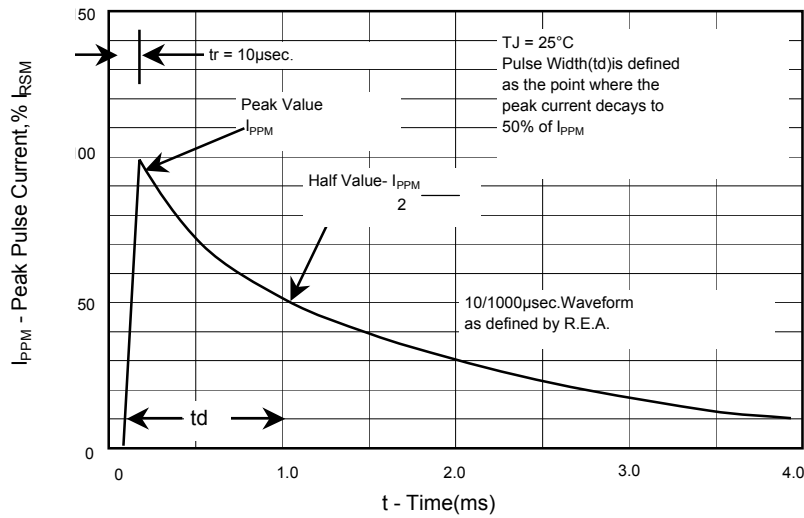


Fig.3 - Pulse Waveform

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## **MAX-20™ Series**

BI-DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM(V)	BREAKDOWN VOLTAGE VBR(V) MIN@IT	BREAKDOWN VOLTAGE VBR(V) MAX@IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT IPP(A)	REVERSE LEAKAGE @VRWM IR(μA)
MAX 20-5.0C	5.00	6.40	7.30	50	9.6	2083.30	5000
MAX 20-5.0CA	5.00	6.40	7.00	50	9.2	2173.90	5000
MAX 20-6.0C	6.00	6.67	8.15	50	11.4	1754.40	5000
MAX 20-6.0CA	6.00	6.67	7.37	50	10.3	1941.70	5000
MAX 20-6.5C	6.50	7.22	8.82	50	12.3	1626.00	5000
MAX 20-6.5CA	6.50	7.22	7.98	50	11.2	1785.70	5000
MAX 20-7.0C	7.00	7.78	9.51	50	13.3	1503.80	2000
MAX 20-7.0CA	7.00	7.78	8.60	50	12.0	1666.70	2000
MAX 20-7.5C	7.50	8.33	10.20	5.0	14.3	1398.60	500
MAX 20-7.5CA	7.50	8.33	9.21	5.0	12.9	1550.40	500
MAX 20-8.0C	8.00	8.89	10.90	5.0	15.0	1333.30	200
MAX 20-8.0CA	8.00	8.89	9.83	5.0	13.6	1470.60	200
MAX 20-8.5C	8.50	9.44	11.50	5.0	15.9	1257.90	50
MAX 20-8.5CA	8.50	9.44	10.40	5.0	14.4	1388.90	50
MAX 20-9.0C	9.00	10.00	12.20	5.0	16.9	1183.40	20
MAX 20-9.0CA	9.00	10.00	11.10	5.0	15.4	1298.70	20
MAX 20-10.0C	10.00	11.10	13.60	5.0	18.8	1063.80	20
MAX 20-10.0CA	10.00	11.10	12.30	5.0	17.0	1176.50	20
MAX 20-11.0C	11.00	12.20	14.90	5.0	20.1	995.02	20
MAX 20-11.0CA	11.00	12.20	13.50	5.0	18.2	1098.90	20
MAX 20-12.0C	12.00	13.30	16.30	5.0	22.0	909.09	20
MAX 20-12.0CA	12.00	13.30	14.70	5.0	19.9	1005.00	20
MAX 20-13.0C	13.00	14.40	17.60	5.0	23.8	840.34	20
MAX 20-13.0CA	13.00	14.40	15.90	5.0	21.5	930.23	20
MAX 20-14.0C	14.00	15.60	19.10	5.0	25.8	775.19	20
MAX 20-14.0CA	14.00	15.60	17.20	5.0	23.2	862.07	20
MAX 20-15.0C	15.00	16.70	20.40	5.0	26.9	743.49	20
MAX 20-15.0CA	15.00	16.70	18.50	5.0	24.4	819.67	20
MAX 20-16.0C	16.00	17.80	21.80	5.0	28.8	694.44	20
MAX 20-16.0CA	16.00	17.80	19.70	5.0	26.0	769.23	20
MAX 20-17.0C	17.00	18.90	23.10	5.0	30.5	655.74	20
MAX 20-17.0CA	17.00	18.90	20.90	5.0	27.6	724.64	20
MAX 20-18.0C	18.00	20.00	24.40	5.0	32.2	621.12	20
MAX 20-18.0CA	18.00	20.00	22.10	5.0	29.2	684.93	20
MAX 20-20.0C	20.00	22.20	27.10	5.0	35.8	558.66	20
MAX 20-20.0CA	20.00	22.20	24.50	5.0	32.4	617.28	20
MAX 20-22.0C	22.00	24.40	29.80	5.0	39.4	507.51	20
MAX 20-22.0CA	22.00	24.40	26.90	5.0	35.5	563.38	20
MAX 20-24.0C	24.00	26.70	32.60	5.0	43.0	465.12	20
MAX 20-24.0CA	24.00	26.70	29.50	5.0	38.9	514.14	20
MAX 20-26.0C	26.00	28.90	35.30	5.0	46.6	429.18	20
MAX 20-26.0CA	26.00	28.90	31.90	5.0	42.1	475.06	20
MAX 20-28.0C	28.00	31.10	38.00	5.0	50.1	399.20	20
MAX 20-28.0CA	28.00	31.10	34.40	5.0	45.4	440.53	20

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MAX 20-30.0C	30.00	33.30	40.70	5.0	53.5	373.83	20
MAX 20-30.0CA	30.00	33.30	36.80	5.0	48.4	413.22	20
MAX 20-33.0C	33.00	36.70	44.90	5.0	59.0	338.98	20
MAX 20-33.0CA	33.00	36.70	40.60	5.0	53.3	375.23	20
MAX 20-36.0C	36.00	40.00	48.90	5.0	64.3	311.04	20
MAX 20-36.0CA	36.00	40.00	44.20	5.0	58.1	344.23	20
MAX 20-40.0C	40.00	44.40	54.30	5.0	71.4	280.11	20
MAX 20-40.0CA	40.00	44.40	49.10	5.0	64.5	310.08	20
MAX 20-43.0C	43.0	47.80	58.40	5.0	76.7	260.76	20
MAX 20-43.0CA	43.0	47.80	52.80	5.0	69.4	288.18	20
MAX 20-45.0C	45.0	50.00	61.10	5.0	80.3	249.07	20
MAX 20-45.0CA	45.0	50.00	55.30	5.0	72.7	275.10	20
MAX 20-48.0C	48.0	53.30	65.20	5.0	85.5	233.92	20
MAX 20-48.0CA	48.0	53.30	58.90	5.0	77.4	258.40	20
MAX 20-51.0C	51.0	56.70	69.30	5.0	91.1	219.54	20
MAX 20-51.0CA	51.0	56.70	62.70	5.0	82.4	242.72	20
MAX 20-54.0C	54.0	60.00	73.30	5.0	96.3	207.68	20
MAX 20-54.0CA	54.0	60.00	66.30	5.0	87.1	229.62	20
MAX 20-58.0C	58.0	64.40	78.70	5.0	103.0	194.17	20
MAX 20-58.0CA	58.0	64.40	71.20	5.0	93.6	213.68	20
MAX 20-60.0C	60.0	66.70	81.50	5.0	107.0	186.92	20
MAX 20-60.0CA	60.0	66.70	73.70	5.0	96.8	206.61	20
MAX 20-64.0C	64.0	71.10	86.90	5.0	114.0	175.44	20
MAX 20-64.0CA	64.0	71.10	78.60	5.0	103.0	194.17	20
MAX 20-70.0C	70.0	77.80	95.10	5.0	125.0	160.00	20
MAX 20-70.0CA	70.0	77.80	86.00	5.0	113.0	176.99	20
MAX 20-75.0C	75.0	83.30	102.00	5.0	134.0	149.25	20
MAX 20-75.0CA	75.0	83.30	92.10	5.0	121.0	165.29	20
MAX 20-78.0C	78.0	86.70	106.00	5.0	139.0	143.88	20
MAX 20-78.0CA	78.0	86.70	95.80	5.0	126.0	158.73	20
MAX 20-85.0C	85.0	94.40	115.00	5.0	151.0	132.45	20
MAX 20-85.0CA	85.0	94.40	104.00	5.0	137.0	145.99	20
MAX 20-90.0C	90.0	100.00	122.00	5.0	160.0	125.00	20
MAX 20-90.0CA	90.0	100.00	111.00	5.0	146.0	136.99	20
MAX 20-100.0C	100.0	111.00	136.00	5.0	179.0	111.73	20
MAX 20-100.0CA	100.0	111.00	123.00	5.0	162.0	123.46	20
MAX 20-110.0C	110.0	122.00	149.00	5.0	196.0	102.04	20
MAX 20-110.0CA	110.0	122.00	135.00	5.0	177.0	112.99	20
MAX 20-120.0C	120.0	133.00	163.00	5.0	214.0	93.458	20
MAX 20-120.0CA	120.0	133.00	147.00	5.0	193.0	103.63	20
MAX 20-130.0C	130.0	144.00	176.00	5.0	230.0	86.957	20
MAX 20-130.0CA	130.0	144.00	159.00	5.0	209.0	95.694	20
MAX 20-150.0C	150.0	167.00	204.00	5.0	268.0	74.627	20
MAX 20-150.0CA	150.0	167.00	185.00	5.0	243.0	82.305	20

For Bidirectional type having Vrwm of 10 volts and less, the ID limit is double.