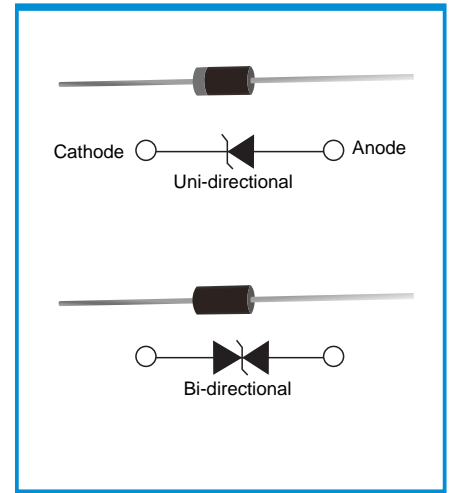


Transient Voltage Suppressors (TVS) Data Sheet

Features

- 500W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Typical I_R less than 1 μ A above 10V.
- High Temperature soldering guaranteed: 265 $^{\circ}$ C/10 seconds/.375", (9.5mm) lead length, 5lbs (2.3kg) tension
- Plastic package has underwriters laboratory flammability 94V-0
- Meets MSL level 1, per J-STD-020.
- Glass passivated junction
- Low incremental surge resistance
- Excellent clamping capability
- Fast response time

Functional Diagram



Mechanical Data

- Case: JEDEC DO-15 Moulded plastic
- Terminal: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types
- Mounting Position: Any
- Weight: 0.42g

Applications

- I/O interface
- Vcc bus
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings and Characteristics

Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Fig.1)	P_{PPM}	Minimum 500	Watts
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^{\circ}$ C (Fig.5)	$P_{M(AV)}$	3.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2, Fig.6)	I_{FSM}	70	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	$^{\circ}$ C
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}$ C/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^{\circ}$ C per Fig.2.

2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (T_A=25°C)

Part Number (Uni)	Device Marking Code	Part Number (Bi)	Device Marking Code	Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts)@ I _T		Test Current I _T (MA)	Maximum Clamping Voltage V _c @ I _{FP} (V)	Maximum Peak Pulse Current I _{PP} (A)	Maximum Reverse Leakage IR @VR (μA)
					Min	Max				
LTV1D5.0AH	SA5.0A	LTV1D5.0CH	SA5.0CA	5.0	6.40	7.00	10	9.2	55.4	600
LTV1D6.0AH	SA6.0A	LTV1D6.0CH	SA6.0CA	6.0	6.67	7.37	10	10.3	49.5	600
LTV1D6.5AH	SA6.5A	LTV1D6.5CH	SA6.5CA	6.5	7.22	7.98	10	11.2	45.5	400
LTV1D7.0AH	SA7.0A	LTV1D7.0CH	SA7.0CA	7.0	7.78	8.60	10	12.0	42.5	150
LTV1D7.5AH	SA7.5A	LTV1D7.5CH	SA7.5CA	7.5	8.33	9.21	1	12.9	39.5	50
LTV1D8.0AH	SA8.0A	LTV1D8.0CH	SA8.0CA	8.0	8.89	9.83	1	13.6	37.5	25
LTV1D8.5AH	SA8.5A	LTV1D8.5CH	SA8.5CA	8.5	9.44	10.40	1	14.4	35.4	10
LTV1D9.0AH	SA9.0A	LTV1D9.0CH	SA9.0CA	9.0	10.00	11.10	1	15.4	33.1	5
LTV1D10AH	SA10A	LTV1D10CH	SA10CA	10.0	11.10	12.30	1	17.0	30.0	3
LTV1D11AH	SA11A	LTV1D11CH	SA11CA	11.0	12.20	13.50	1	18.2	28.0	1
LTV1D12AH	SA12A	LTV1D12CH	SA12CA	12.0	13.30	14.70	1	19.9	25.6	1
LTV1D13AH	SA13A	LTV1D13CH	SA13CA	13.0	14.40	15.90	1	21.5	23.7	1
LTV1D14AH	SA14A	LTV1D14CH	SA14CA	14.0	15.60	17.20	1	23.2	22.0	1
LTV1D15AH	SA15A	LTV1D15CH	SA15CA	15.0	16.70	18.50	1	24.4	20.9	1
LTV1D16AH	SA16A	LTV1D16CH	SA16CA	16.0	17.80	19.70	1	26.0	19.6	1
LTV1D17AH	SA17A	LTV1D17CH	SA17CA	17.0	18.90	20.90	1	27.6	18.5	1
LTV1D18AH	SA18A	LTV1D18CH	SA18CA	18.0	20.00	22.10	1	29.2	17.5	1
LTV1D20AH	SA20A	LTV1D20CH	SA20CA	20.0	22.20	24.50	1	32.4	15.7	1
LTV1D22AH	SA22A	LTV1D22CH	SA22CA	22.0	24.40	26.90	1	35.5	14.4	1
LTV1D24AH	SA24A	LTV1D24CH	SA24CA	24.0	26.70	29.50	1	38.9	13.1	1
LTV1D26AH	SA26A	LTV1D26CH	SA26CA	26.0	28.90	31.90	1	42.1	12.1	1
LTV1D28AH	SA28A	LTV1D28CH	SA28CA	28.0	31.10	34.40	1	45.4	11.2	1
LTV1D30AH	SA30A	LTV1D30CH	SA30CA	30.0	33.30	36.80	1	48.4	10.5	1
LTV1D33AH	SA33A	LTV1D33CH	SA33CA	33.0	36.70	40.60	1	53.3	9.6	1
LTV1D36AH	SA36A	LTV1D36CH	SA36CA	36.0	40.00	44.20	1	58.1	8.8	1
LTV1D40AH	SA40A	LTV1D40CH	SA40CA	40.0	44.40	49.10	1	64.5	7.9	1
LTV1D43AH	SA43A	LTV1D43CH	SA43CA	43.0	47.80	52.80	1	69.4	7.3	1
LTV1D45AH	SA45A	LTV1D45CH	SA45CA	45.0	50.00	55.30	1	72.7	7.0	1
LTV1D48AH	SA48A	LTV1D48CH	SA48CA	48.0	53.30	58.90	1	77.4	6.6	1
LTV1D51AH	SA51A	LTV1D51CH	SA51CA	51.0	56.70	62.70	1	82.4	6.2	1
LTV1D54AH	SA54A	LTV1D54CH	SA54CA	54.0	60.00	66.30	1	87.1	5.9	1
LTV1D58AH	SA58A	LTV1D58CH	SA58CA	58.0	64.40	71.20	1	93.6	5.4	1
LTV1D60AH	SA60A	LTV1D60CH	SA60CA	60.0	66.70	73.70	1	96.8	5.3	1
LTV1D64AH	SA64A	LTV1D64CH	SA64CA	64.0	71.10	78.60	1	103.0	5.0	1
LTV1D70AH	SA70A	LTV1D70CH	SA70CA	70.0	77.80	86.00	1	113.0	4.5	1
LTV1D75AH	SA75A	LTV1D75CH	SA75CA	75.0	83.30	92.10	1	121.0	4.2	1
LTV1D78AH	SA78A	LTV1D78CH	SA78CA	78.0	86.70	95.80	1	126.0	4.0	1
LTV1D85AH	SA85A	LTV1D85CH	SA85CA	85.0	94.40	104.00	1	137.0	3.7	1
LTV1D90AH	SA90A	LTV1D90CH	SA90CA	90.0	100.00	111.00	1	146.0	3.5	1
LTV1D100AH	SA100A	LTV1D100CH	SA100CA	100.0	111.00	123.00	1	162.0	3.1	1
LTV1D110AH	SA110A	LTV1D110CH	SA110CA	110.0	122.00	135.00	1	177.0	2.9	1
LTV1D120AH	SA120A	LTV1D120CH	SA120CA	120.0	133.00	147.00	1	193.0	2.6	1
LTV1D130AH	SA130A	LTV1D130CH	SA130CA	130.0	144.00	159.00	1	209.0	2.4	1
LTV1D150AH	SA150A	LTV1D150CH	SA150CA	150.0	167.00	185.00	1	243.0	2.1	1
LTV1D160AH	SA160A	LTV1D160CH	SA160CA	160.0	178.00	197.00	1	259.0	2.0	1
LTV1D170AH	SA170A	LTV1D170CH	SA170CA	170.0	189.00	209.00	1	275.0	1.9	1
LTV1D180AH	SA180A	LTV1D180CH	SA180CA	180.0	201.00	222.00	1	292.0	1.7	1
LTV1D190AH	SA190A	LTV1D190CH	SA190CA	190.0	211.00	233.00	1	308.0	1.6	1
LTV1D200AH	SA200A	LTV1D200CH	SA200CA	200.0	224.00	247.00	1	324.0	1.5	1
LTV1D210AH	SA210A	LTV1D210CH	SA210CA	210.0	237.00	263.00	1	340.0	1.5	1
LTV1D220AH	SA220A	LTV1D220CH	SA220CA	220.0	246.00	272.00	1	356.0	1.4	1

Notes: For bidirectional type having V_R of 10V and less, the I_R limit is double.

Figure 1. Peak Pulse Power Rating Curve

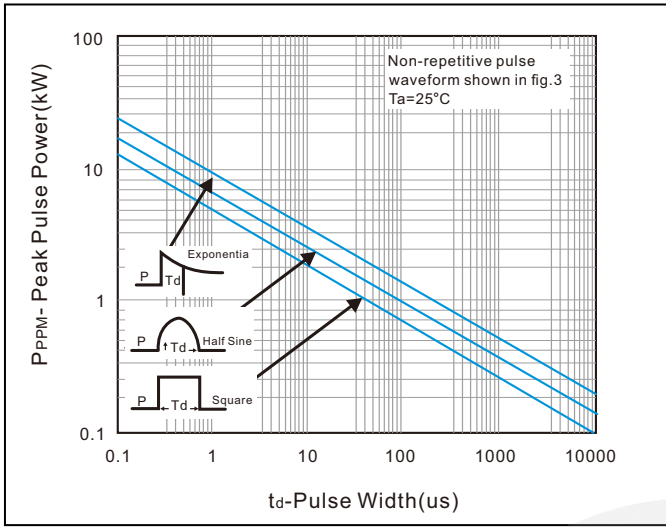


Figure 2. Pulse Derating Curve

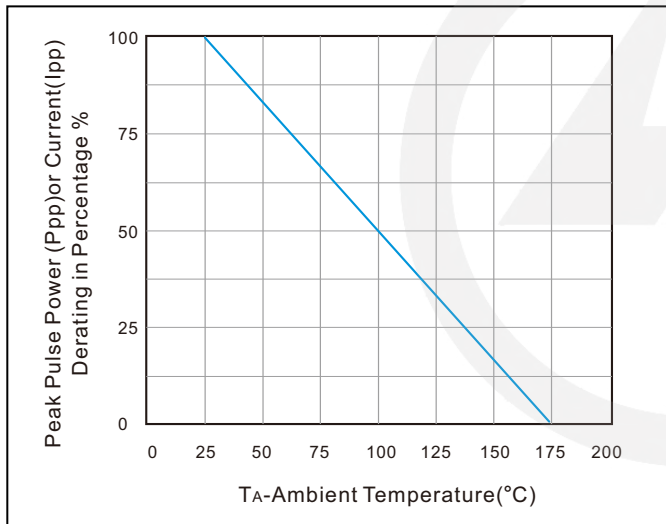


Figure 3. Pulse Waveform

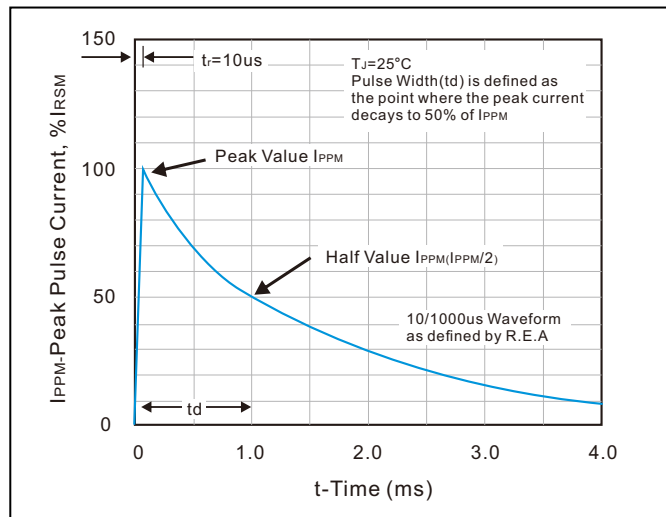


Figure 4. Typical Junction Capacitance

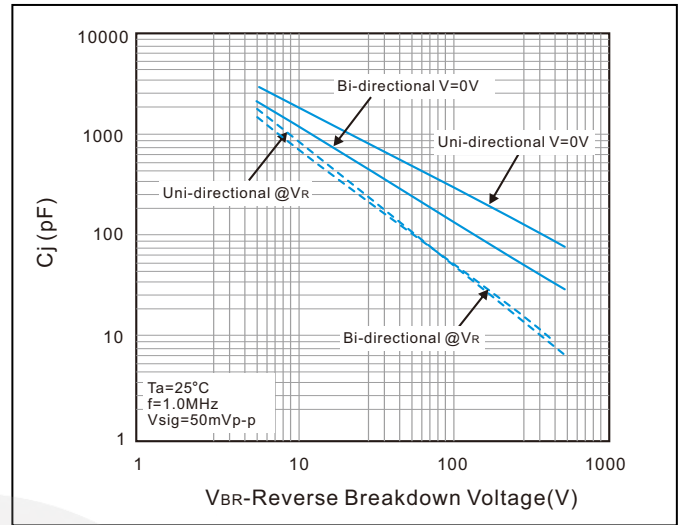


Figure 5. Steady State Power Dissipation Derating Curve

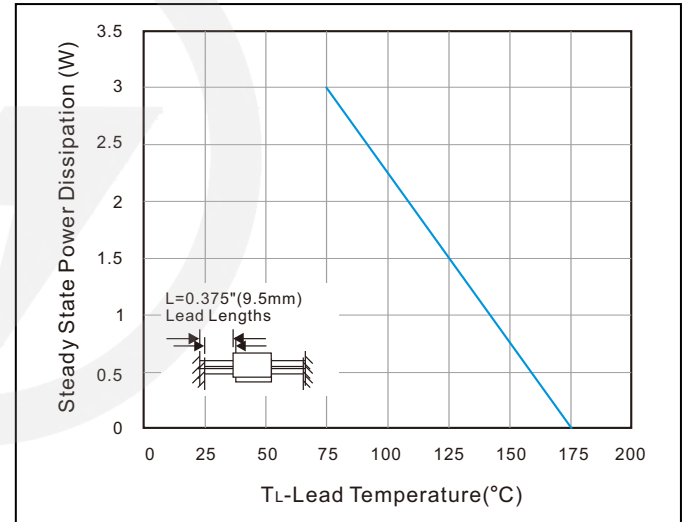
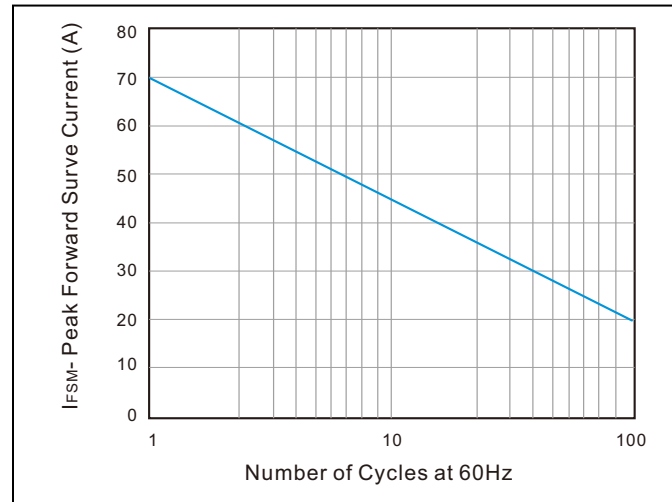
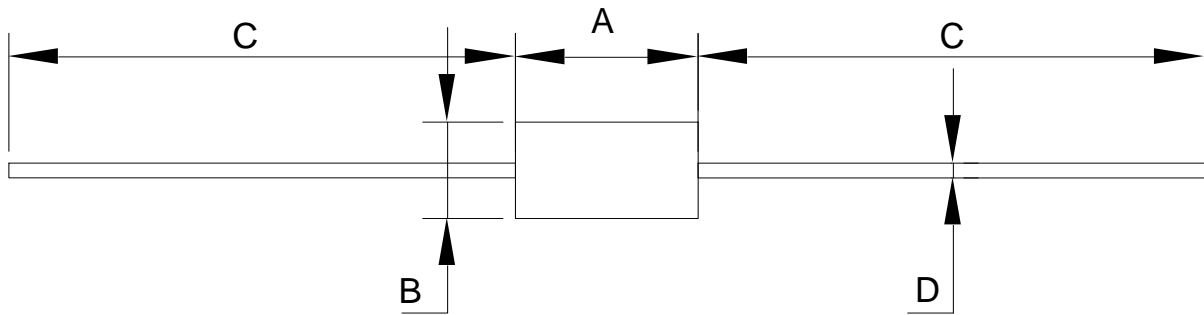


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



DO-15 Package Outline

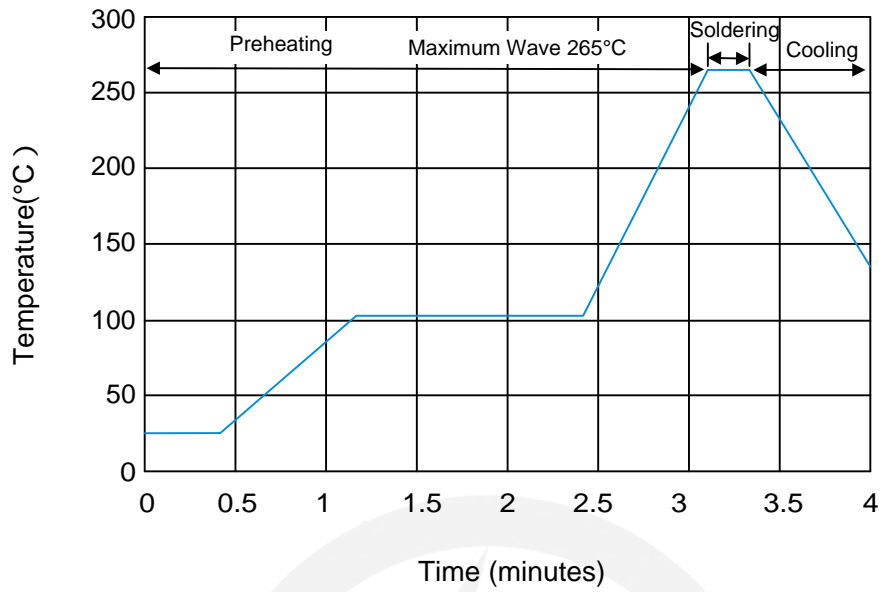


Unit:mm

DO-15		
Dim	Min	Max
A	5.80	7.60
B	2.60	3.60
C	25.4 TYP.	
D	0.71	0.87

Recommended Soldering Conditions

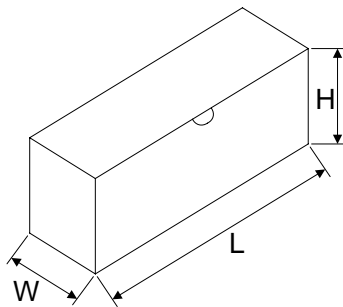
Wave Soldering



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

Packaging

Box



L	290.0±5.0
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W	80.0±5.0
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H	140.0±5.0
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Quantity: 3000PCS