

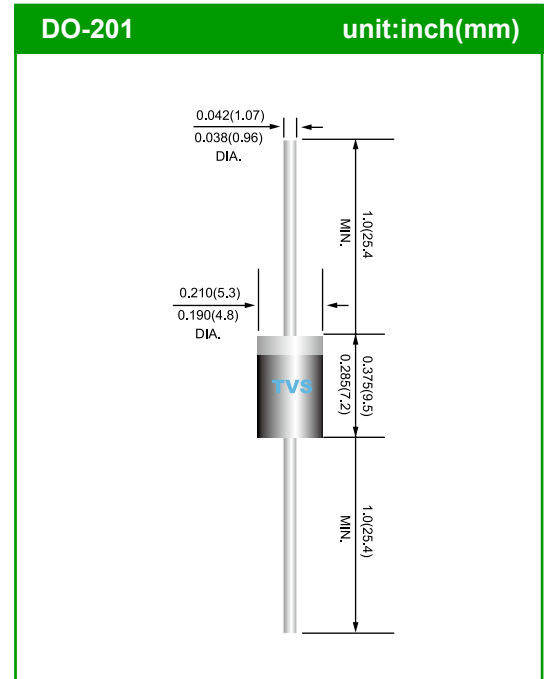


Axial Leaded - 1500W > LCE6.5~90A Series

The LCE Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features

- Halogen-free
- Rohs compliant
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR@25^{\circ}C} \times \Delta T$
- Glass passivated Chip junction in DO-201package
- 1500W peak pulse capability at 10×1000μs waveform, repetition rate(duty cycles):0.01%
- Fast response time:typically less than 1.0ps from 0 Volts to BV min
- Excellent clamping capability
- Low incremental surge resistance
- Typical I_R less than 5μA above 11V
- High temperature soldering guaranteed: 260°C/40 seconds / 0.375",(9.5mm) lead length, 5lbs., (2.3kg) tension
- Plastic package has underwriters laboratory flammability classification 94v-0



Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom,computer, industrial and consumer electronic applications.

Maximum Ratings And Characteristics (TA=25°C unless otherwise noted)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by 10x1000μs test waveform (Fig.1)(Note 1)	P _{PPM}	1500	Watts
Steady State Power Dissipation on infinite heat sink at TL=75°C (Fig. 5)	P _D	6.5	Watts
Operating junction and Storage Temperature Range.	T _J ,T _{STG}	-55°C to 175°C	°C

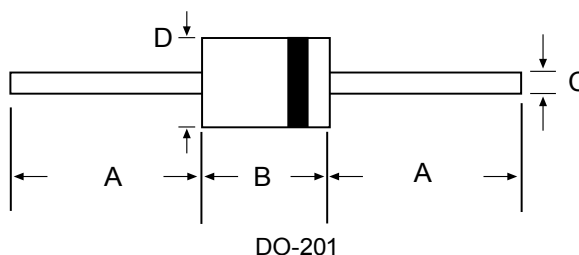
Note:

1. Non-repetitive current pulse , per Fig. 3 and derated above TA = 25°C per Fig. 2.



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Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	1.000	-	25.40	-
B	0.285	0.375	7.20	9.50
C	0.038	0.042	0.96	1.07
D	0.190	0.210	4.80	5.30

Electrical Characteristics

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage NIN.@IT	Breakdown Voltage MAX.@IT	Test Current IT(mA)	Maximum Reverse Leakage @VRWM	Maximum Peak Pulse Current IPP(A)	Maximum Clamping Voltage @IPP	Maximum Junction Capacitance @0V	Working Inverse Blocking Voltage VWIB(V)	Inverse Blocking Leakage Current IIB(mA)	Peak Inverse Blocking Voltage VPIB(V)
	VRWM(V)	VBR MIN.(V)	VBR MAX.(V)		IR(μA)	VC(V)	pF				
LCE6.5A	6.5	7.22	7.98	10	1000	100	11.2	100	75	1.0	100
LCE7.0A	7.0	7.78	8.60	10	500	100	12.0	100	75	1.0	100
LCE7.5A	7.5	8.33	9.21	10	250	100	12.9	100	75	1.0	100
LCE8.0A	8.0	8.89	9.83	1	100	100	13.6	100	75	1.0	100
LCE8.5A	8.5	9.44	10.40	1	50	100	14.4	100	75	1.0	100
LCE9.0A	9.0	10.00	11.10	1	10	97	15.4	100	75	1.0	100
LCE10A	10.0	11.10	12.30	1	5	88	17.0	100	75	1.0	100
LCE11A	11.0	12.20	13.50	1	1	82	18.2	100	75	1.0	100
LCE12A	12.0	13.30	14.70	1	1	75	19.9	100	75	1.0	100
LCE13A	13.0	14.40	15.90	1	1	70	21.5	100	75	1.0	100
LCE14A	14.0	15.60	17.20	1	1	65	23.2	100	75	1.0	100
LCE15A	15.0	16.70	18.50	1	1	61	24.4	100	75	1.0	100
LCE16A	16.0	17.80	19.70	1	1	57	26.0	100	75	1.0	100
LCE17A	17.0	18.90	20.90	1	1	54	27.6	100	75	1.0	100
LCE18A	18.0	20.00	22.10	1	1	51	29.2	100	75	1.0	100
LCE20A	20.0	22.20	24.50	1	1	46	32.4	100	75	1.0	100
LCE22A	22.0	24.40	26.90	1	1	42	35.5	100	75	1.0	100
LCE24A	24.0	26.70	29.50	1	1	39	38.9	100	75	1.0	100
LCE26A	26.0	28.90	31.90	1	1	36	42.1	100	75	1.0	100
LCE28A	28.0	31.10	34.40	1	1	33	45.5	100	75	1.0	100



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Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Peak Pulse Power Rating

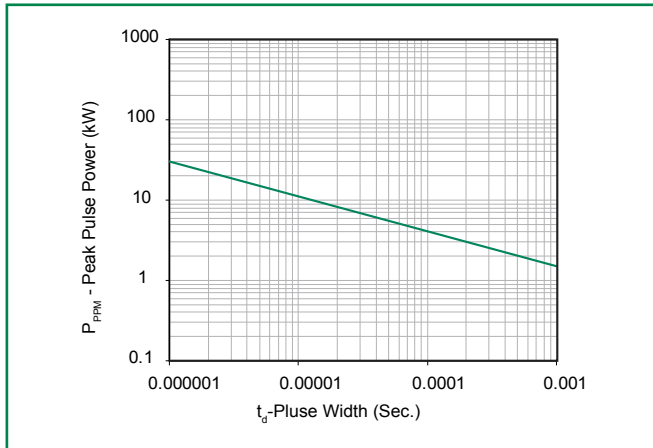


Figure 2 - Power Derating Curve

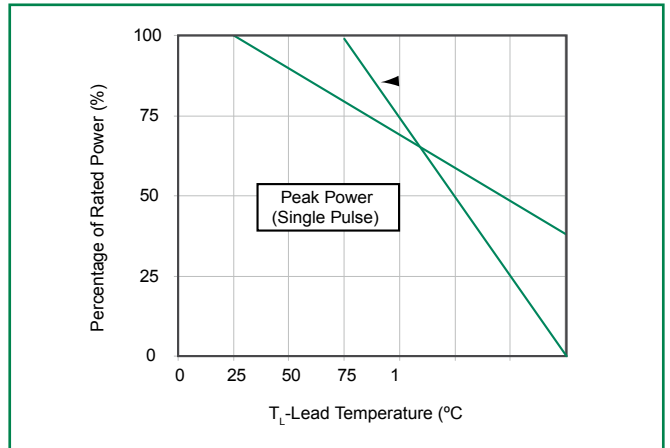


Figure 3 - Pulse Waveform

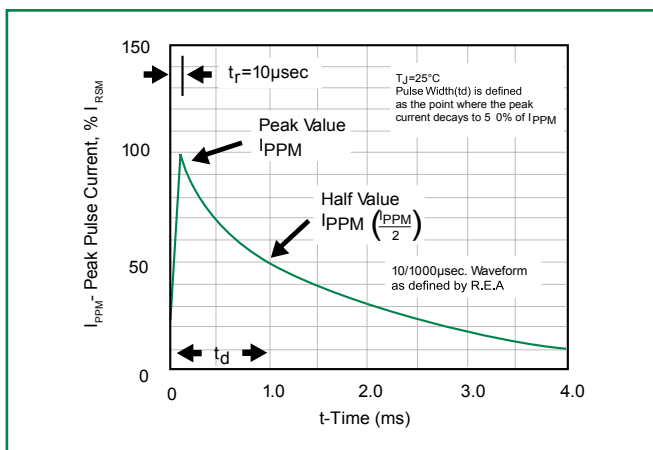


Figure 4 - AC Line Protection Application

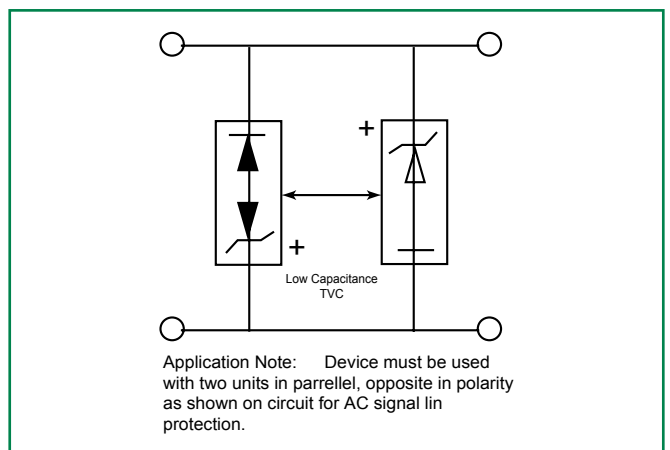
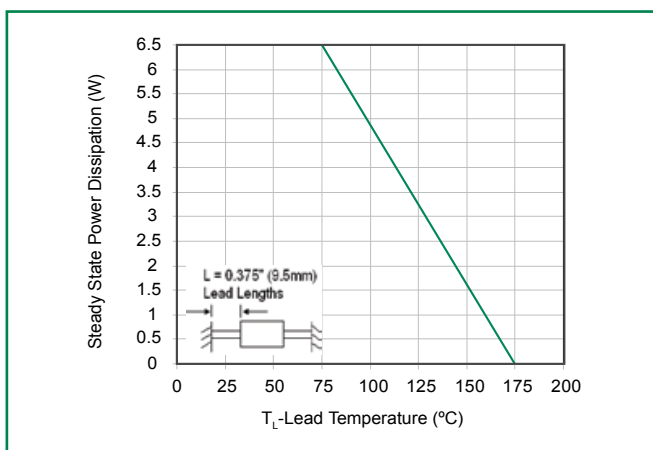


Figure 5 - Steady State Power Derating Curve

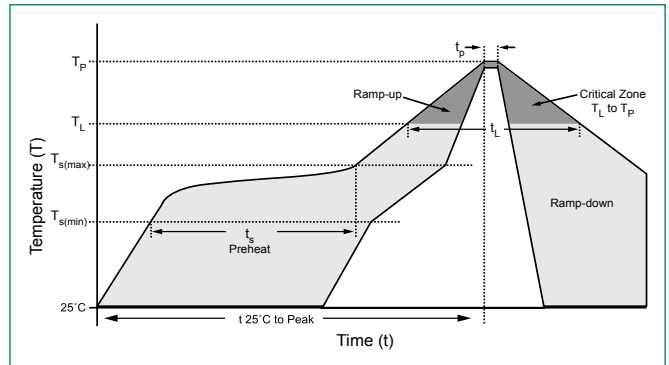




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Soldering Parameters

Reflow Condition	Lead-free assembly	
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)	3°C/second max	
$T_{s(max)}$ to T_L - Ramp-up Rate	3°C/second max	
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60 – 150 seconds
Peak Temperature (T_p)	260 ^{+0/-5} °C	
Time within 5°C of actual peak Temperature (t_p)	20 – 40 seconds	
Ramp-down Rate	6°C/second max	
Time 25°C to peak Temperature (T_p)	8 minutes Max.	
Do not exceed	280°C	



Flow/Wave Soldering (Solder Dipping)

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

Physical Specifications

Weight	0.045oz., 1.2g
Case	JEDEC DO-201 molded plastic body over passivated junction.
Polarity	Color band denotes the cathode except Bipolar.
Terminal	Matte Tin axial leads, solderable per JESD22-B102D.

Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Part Numbering System

