Description

The RLDSON10Q258LV is a low capacitance high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The RLDSON10Q258LV complies with the IEC 61000-4-2 (ESD) with 30kV air and 30kV contact discharge. It is assembled into a 10-pin DFN3020-10 lead-free package. Each device will protect two line pairs high-speed lines. The combination of small size, low capacitance, and high surge capability makes them ideal for use in applications such as Gigabit Ethernet, telecommunication lines, and LVDS interfaces.

Features

- Stand-off voltage: ±2.5V Max.
- Low capacitance: 1.7pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 2.5V
- Ultra low clamping voltage
- Protects up to eight lines
- Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
  Air discharge: ±30kV
  Contact discharge: ±30kV
  IEC61000-4-5 (Lightning) 40A (8/20μs)
- RoHS Compliant

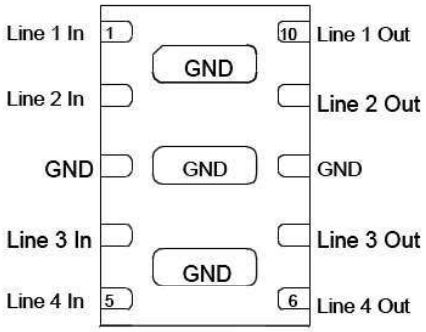
Applications

- LVDS Interfaces
- 10/100/1000 Ethernet
- Notebooks, Desktops, Servers
- Networking Equipment
- Switching Systems
- Audio/Video Inputs

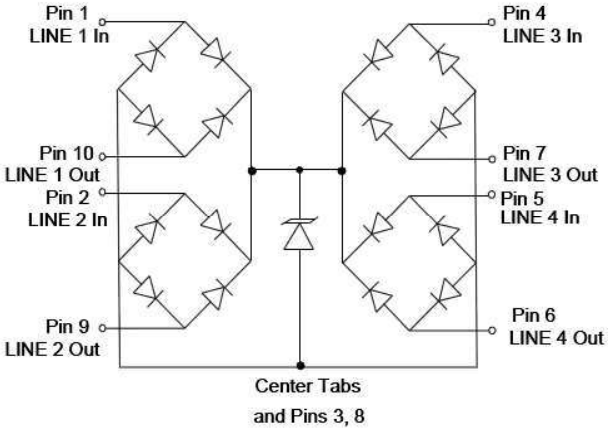
Mechanical Characteristics

- Package: DFN3020-10
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020

Pin Configuration



Circuit Schematic



Absolute Maximum Rating

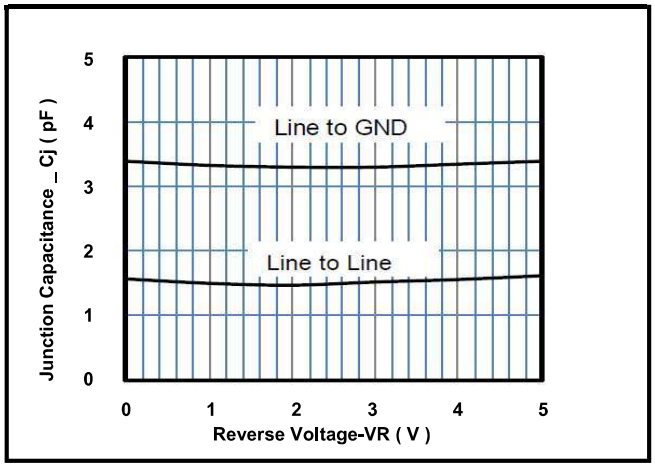
Rating	Symbol	Value	Units
Peak Pulse Power (tp =8/20μs)	P_{PP}	1000	W
ESD Voltage (Air) ESD Voltage (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature	T_J	-55 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

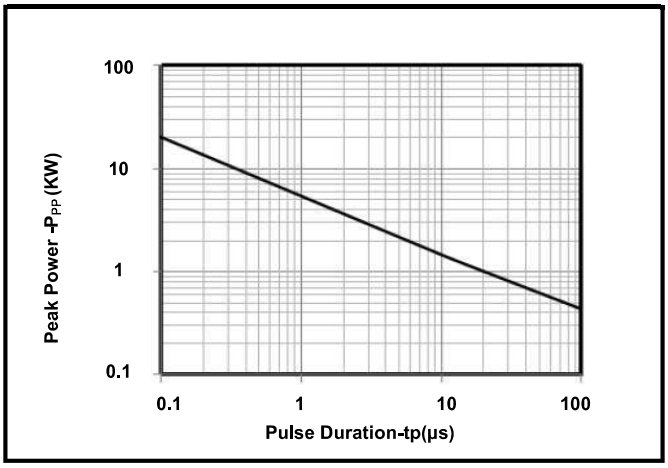
Type Number	Reverse Stand-Off Voltage	Minimum Breakdown Voltage	Peak Pulse Voltage @8/20μS	V_C @8/20μs		Reverse Leakage @V_{RWM}	Typical Capacitance
	V_{RWM}	V_{BR} @1mA	V_C@1A	(max.)	@I_{PP}	I_R@V_{RWM}	DC=0V C_J@ 1 MHz
	V	V	V	V	A	μA	pF
RLDSON10Q258LV	2.5	3.5	5.5	25	40	0.5	1.7

Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)

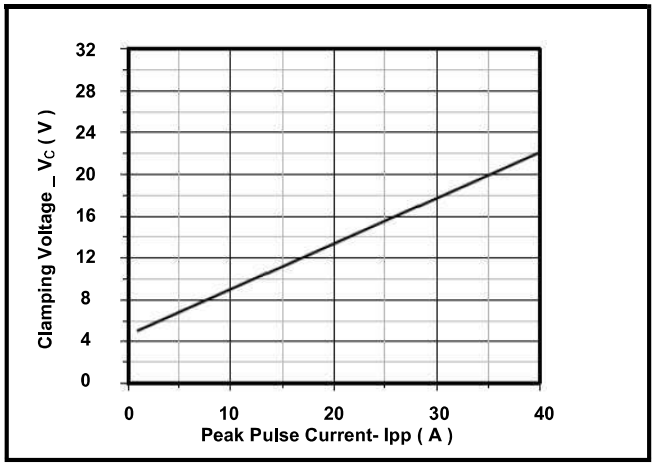
Junction Capacitance vs. Reverse Voltage



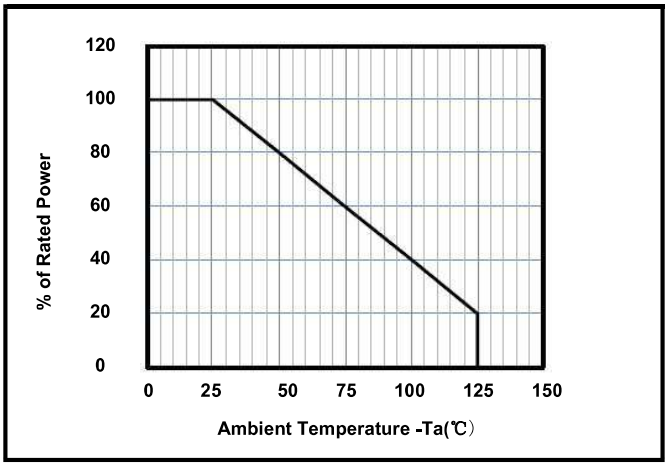
Peak Pulse Power vs. Pulse Time



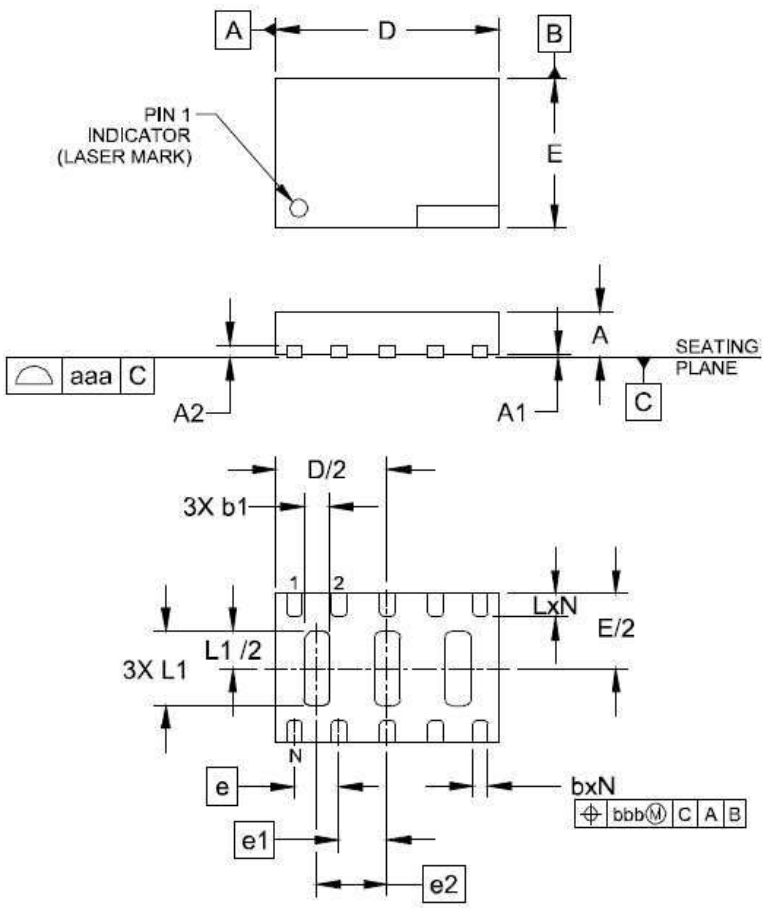
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



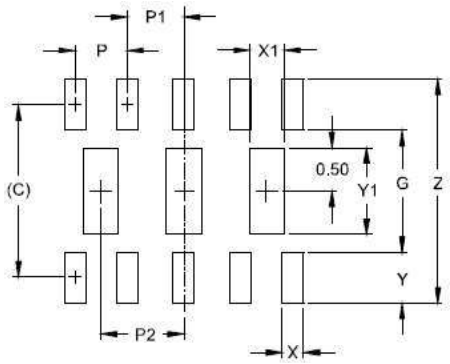
Dimensions



DIM	Millimeters		
	Min	Typ	Max
A	0.50	0.60	0.65
A1	0.000	0.03	0.05
A2		0.15	
b	0.15	0.20	0.25
b1	0.25	0.35	0.45
D	2.90	3.00	3.10
E	1.90	2.00	2.10
e		0.60BSC	
e1		0.65BSC	
e2		0.95BSC	
L	0.25	0.30	0.35
L1	0.95	1.00	1.05
N		10	
aaa		0.08	
bbb		0.10	

Part Number	Packaging	Quantity	DFN-10L package	Molding compound flammability rating	Lead Finish
RLDSON10Q258LV	Tape and Reel	3000	3.0×2.0×0.60mm	UL 94V-0	Lead Free

Suggested Land Pattern



DIM	Millimeters
C	1.98
G	1.40
P	0.60
P1	0.65
P2	0.95
X	0.25
X1	0.40
Y	0.58
Y1	1.00
Z	2.56