

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## PTVSHC2EN12VU-MS

Product specification

## Features

- 1600W Peak pulse power per line ( $t_P = 8/20\mu s$ )
- DFN1610-2 package
- Response time is typically  $< 1\text{ ns}$
- Protect one I/O or power line
- Low clamping Voltage
- RoHS compliant
- Transient protection for data lines to  
IEC 61000-4-2(ESD)  $\pm 30\text{KV}$ (air),  $\pm 30\text{KV}$ (contact);  
IEC 61000-4-4 (EFT) 40A (5/50ns)


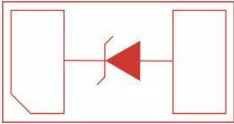

## Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Pure tin plating: 7 ~ 17  $\mu m$
- Pin flatness: $\leq 3\text{mil}$
- Device meets MSL3 requirements

## Applications

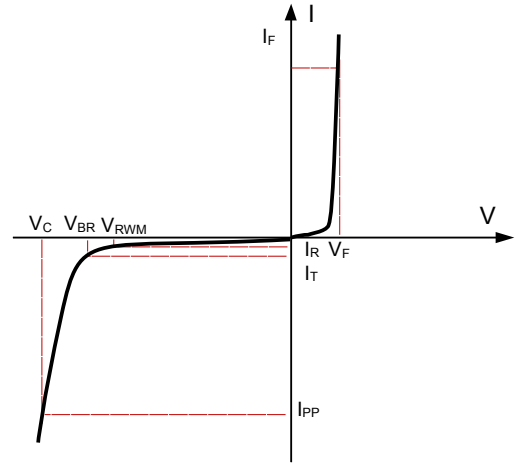
- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players

## Reference News

PACKAGE OUTLINE	Circuit Diagram	Marking
		
DFN1610-2L		

## Electronics Parameter

Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$P_{PP}$	Peak Pulse Power
$C_J$	Junction Capacitance
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



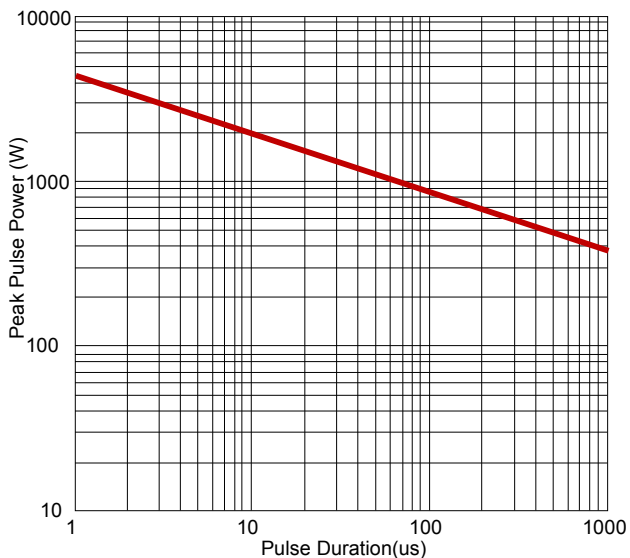
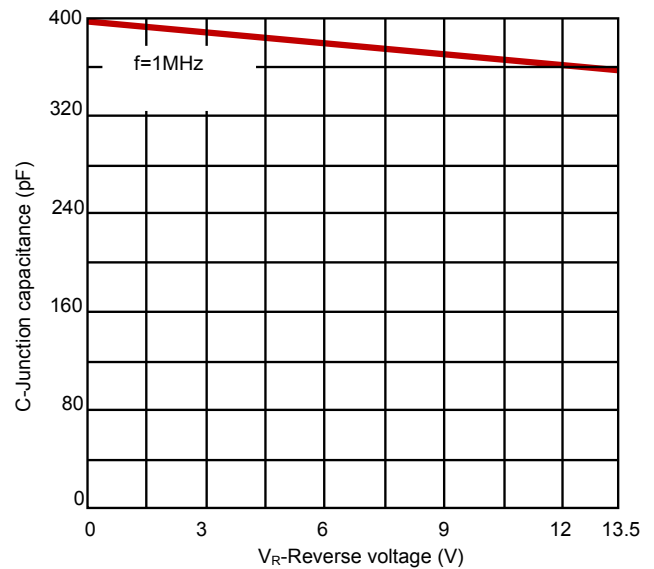
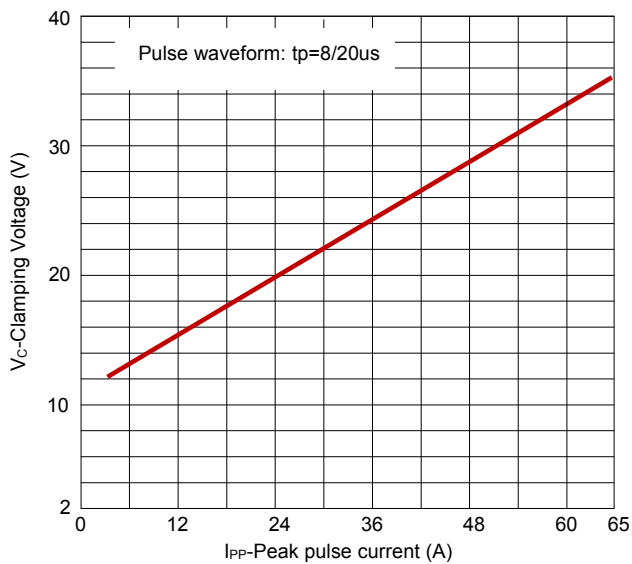
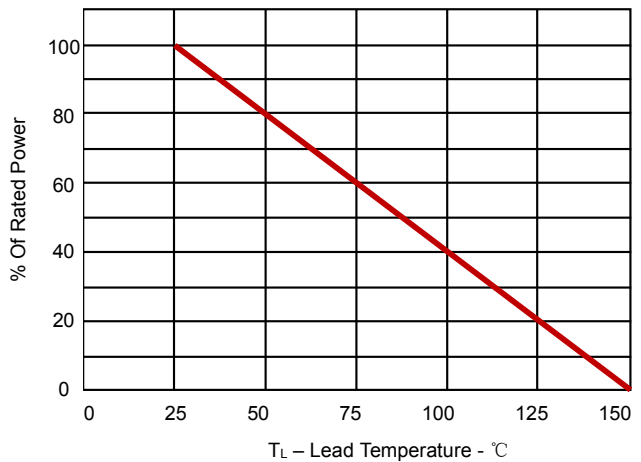
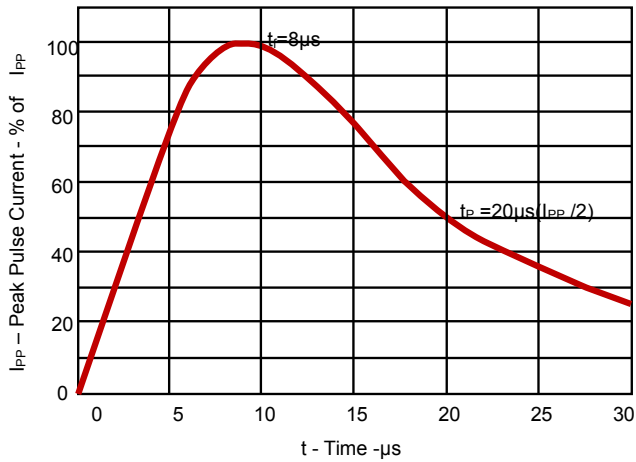
## Electrical characteristics per line@25°C ( unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				12	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	13.5	15.0		V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP}=65\text{A}$ $t_P = 8/20\mu\text{s}$		30.0	35.0	V
Junction Capacitance	$C_J$	$V_R=0\text{V}$ $f = 1\text{MHz}$	300	355	400	pF

## Absolute maximum rating@25°C

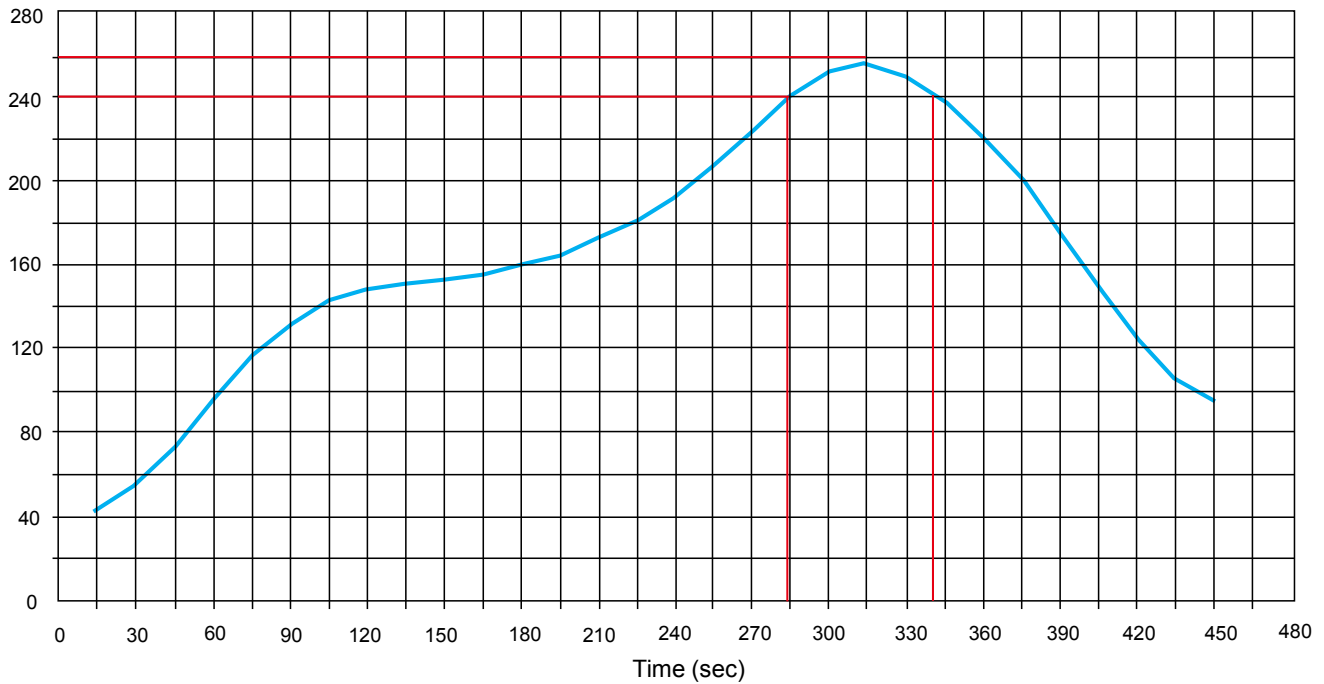
Rating	Symbol	Value	Units
Peak Pulse Power ( $t_P = 8/20\mu\text{s}$ )	$P_{pp}$	1600	W
Lead Soldering Temperature	$T_L$	260 (10 sec)	°C
Operating Temperature	$T_J$	-55 to +125	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C

## Typical Characteristics



## SolderReflowRecommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec

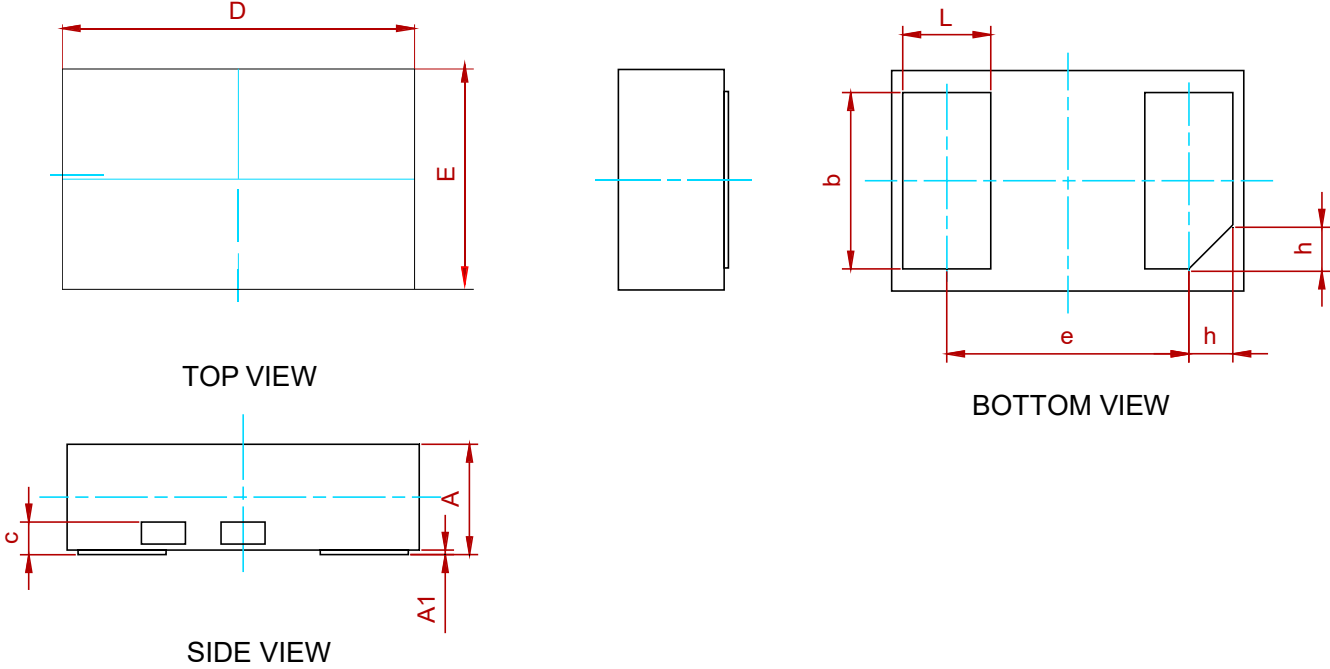


## PCBDesign

For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

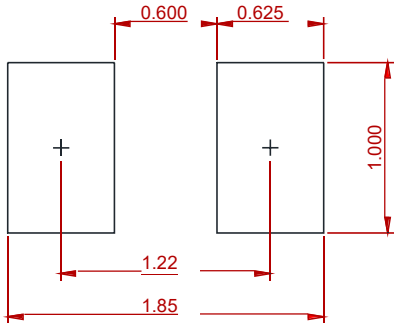
- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.

**PACKAGE MECHANICAL DATA**



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
c	0.15 Ref.		
b	0.75	0.80	0.85
L	0.35	0.40	0.45
D	1.55	1.60	1.65
E	0.95	1.00	1.05
e	1.10 BSC		
h	0.20 Ref.		

**Recommend PCB Layout (Unit: mm)**



Notes:  
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

**REEL SPECIFICATION**

P/N	PKG	QTY
PTVSHC2EN12VU-MS	DFN1610-2	3000

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