

# MSKSEMI

SEMICONDUCTOR



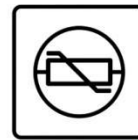
ESD



TVS



TSS



MOV



GDT

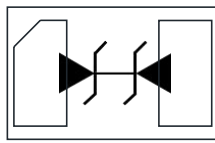


PLED

Product data sheet



**DFN1610-2L**



Pin1 — Pin2

**Marking** D5N

**Feature**

- 1500W Peak pulse power per line ( $t_P = 8/20\mu s$ )
- DFN1610-2L 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)

**Applications**

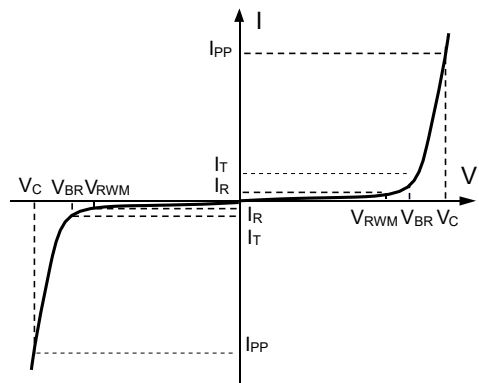
- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players

**Mechanical Characteristics**

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

**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



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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				5.0	V
Breakdown Voltage	$V_{BR}$	$I_t = 1mA$	5.5		7.5	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V T=25^{\circ}C$			1.0	$\mu A$
Clamping Voltage	$V_C$	$I_{PP}=20A t_P = 8/20\mu s$		8.0	10	V
Clamping Voltage	$V_C$	$I_{PP}=50A t_P = 8/20\mu s$		9.0	11	V
Clamping Voltage	$V_C$	$I_{PP}=100A t_P = 8/20\mu s$		10	12	V
Clamping Voltage	$V_C$	$I_{PP}=140A t_P = 8/20\mu s$		11	13	V
Junction Capacitance	$C_j$	$V_R=0V f = 1MHz$		400	450	pF

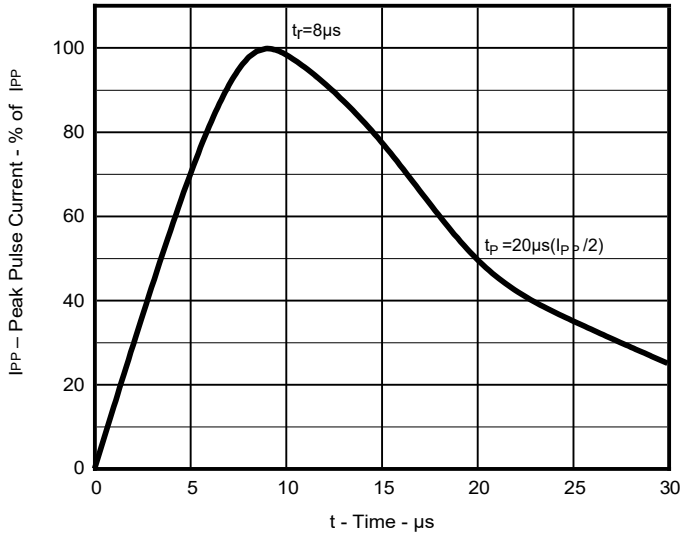
**Note**

- 1) VRWM is the maximum reverse working voltage, or reverse stand-off voltage. ESD can protect signal line properly within its rated voltage. If the signal line's voltage is over VRWM, ESD will change to other state.

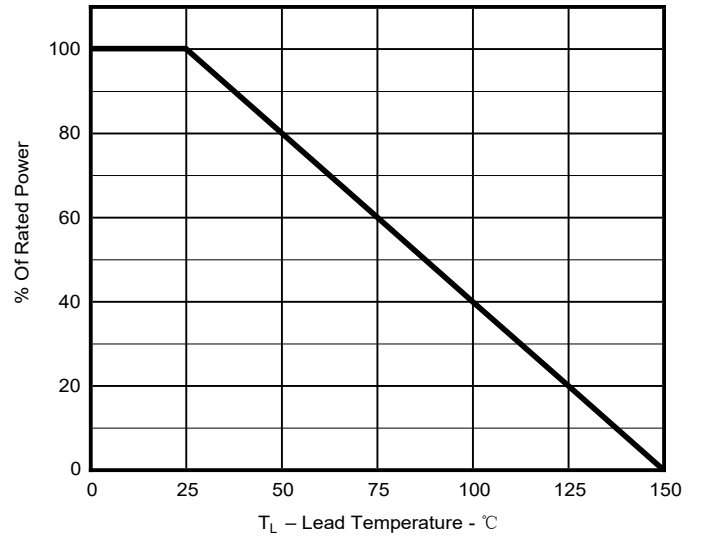
**Absolute maximum rating@25°C**

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_P = 8/20\mu s$ )	$P_{PP}$	1500	W
Peak Pulse Current ( $t_P = 8/20\mu s$ )	$I_{PP}$	140	A
Lead Soldering Temperature	$T_L$	260 (10 sec)	$^{\circ}C$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	$^{\circ}C$

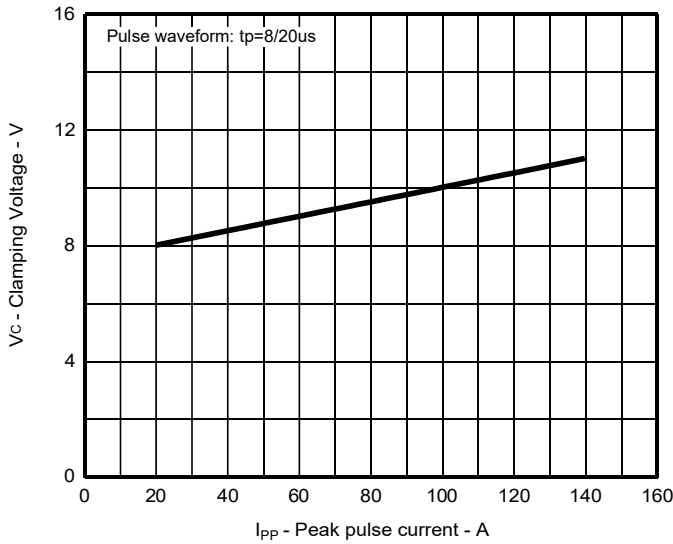
**Typical Characteristics**



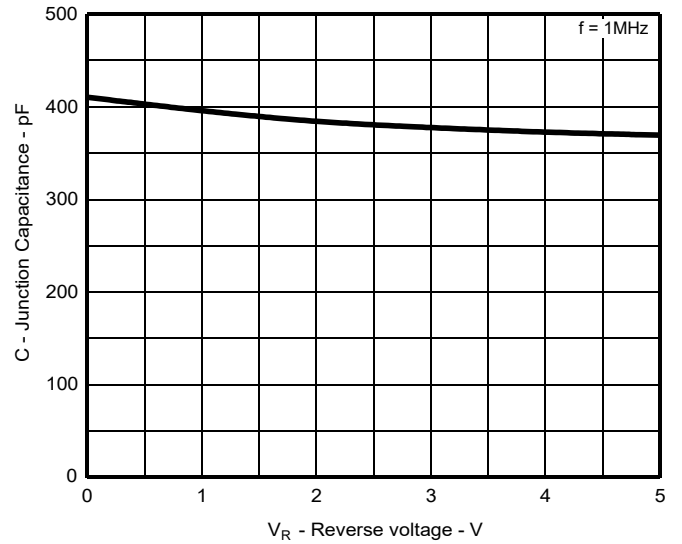
**Fig 1. Pulse Waveform(8/20μs)**



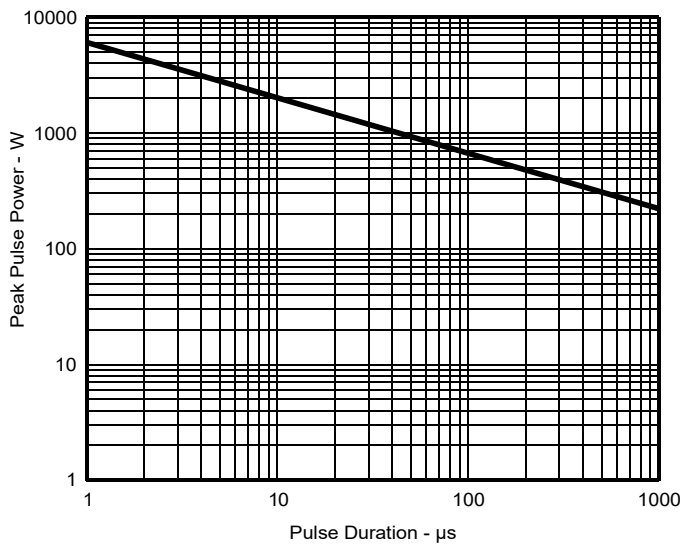
**Fig 2. Power Derating Curve**



**Fig 3. Clamping voltage vs. Peak pulse current**

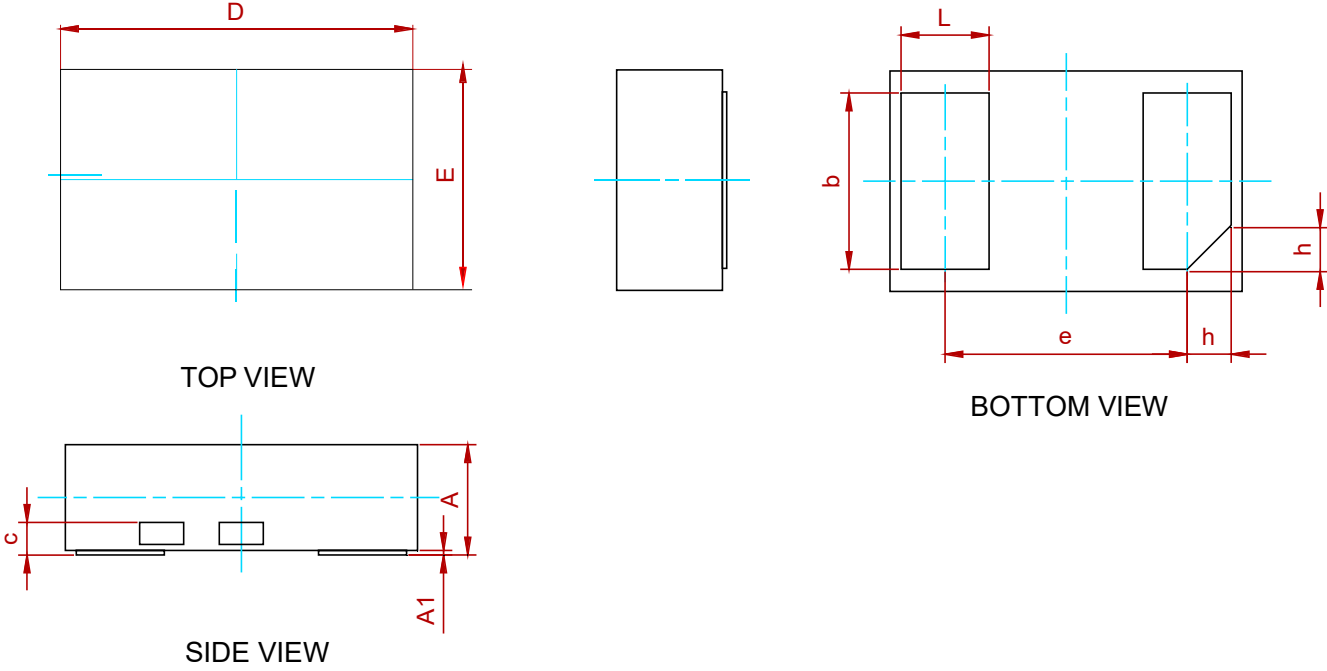


**Fig 4. Capacitance vs. Reverse voltage**



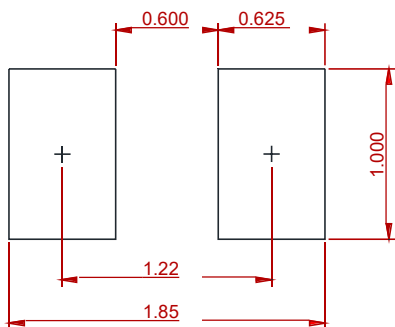
**Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time**

**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
PTVSHC2EN5VB-MS	DFN1610-2L	3000

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