

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



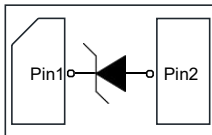
PLED

Product data sheet

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**DFN1610-2L**



**Circuit diagram**

**Marking** H12N

**Feature**

- 1600W 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)  $\pm 30\text{KV}(\text{air}), \pm 30\text{KV}(\text{contact});$  IEC 61000-4-4 (EFT) 40A (5/50ns)

**Applications**

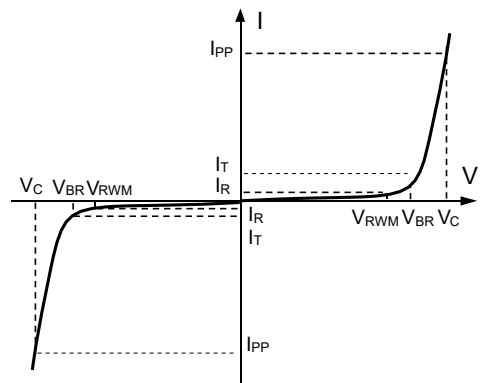
- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players

**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 MSL3 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	$V_{RWM}$				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**

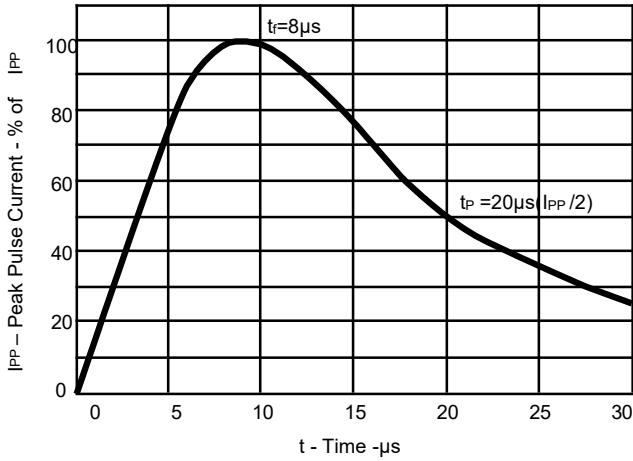


Fig 1. Pulse Waveform

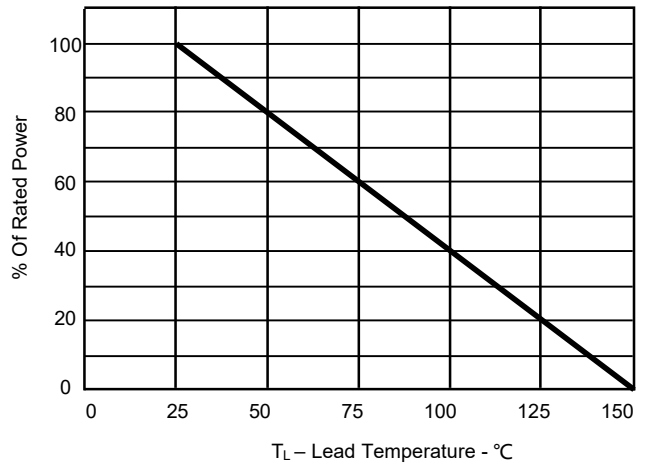


Fig 2. Power Derating Curve

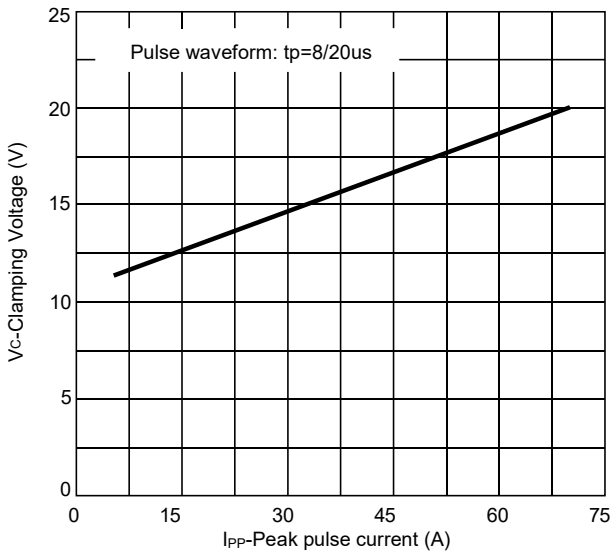


Fig 3. Clamping voltage vs. Peak pulse current

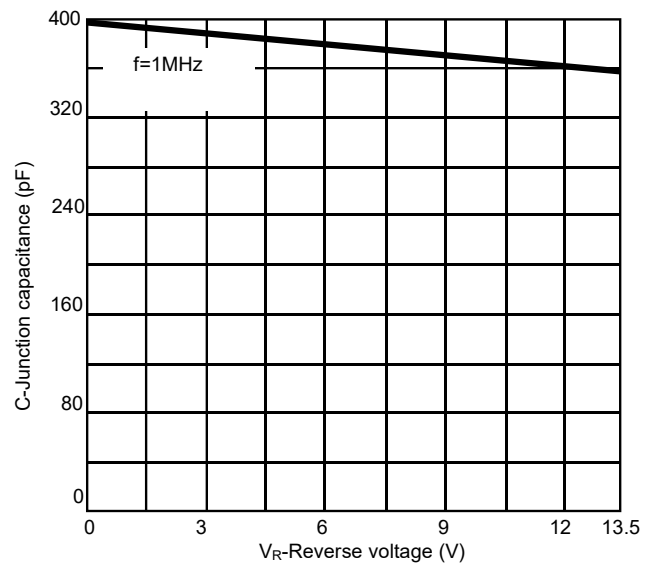


Fig 4. Capacitance vs. Reverse voltage

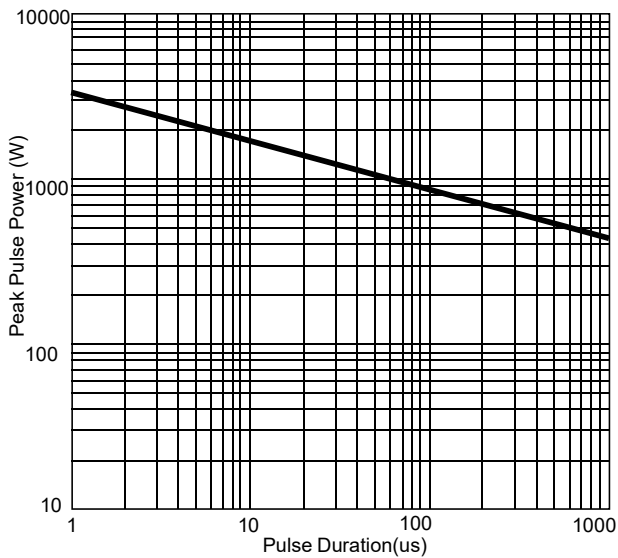
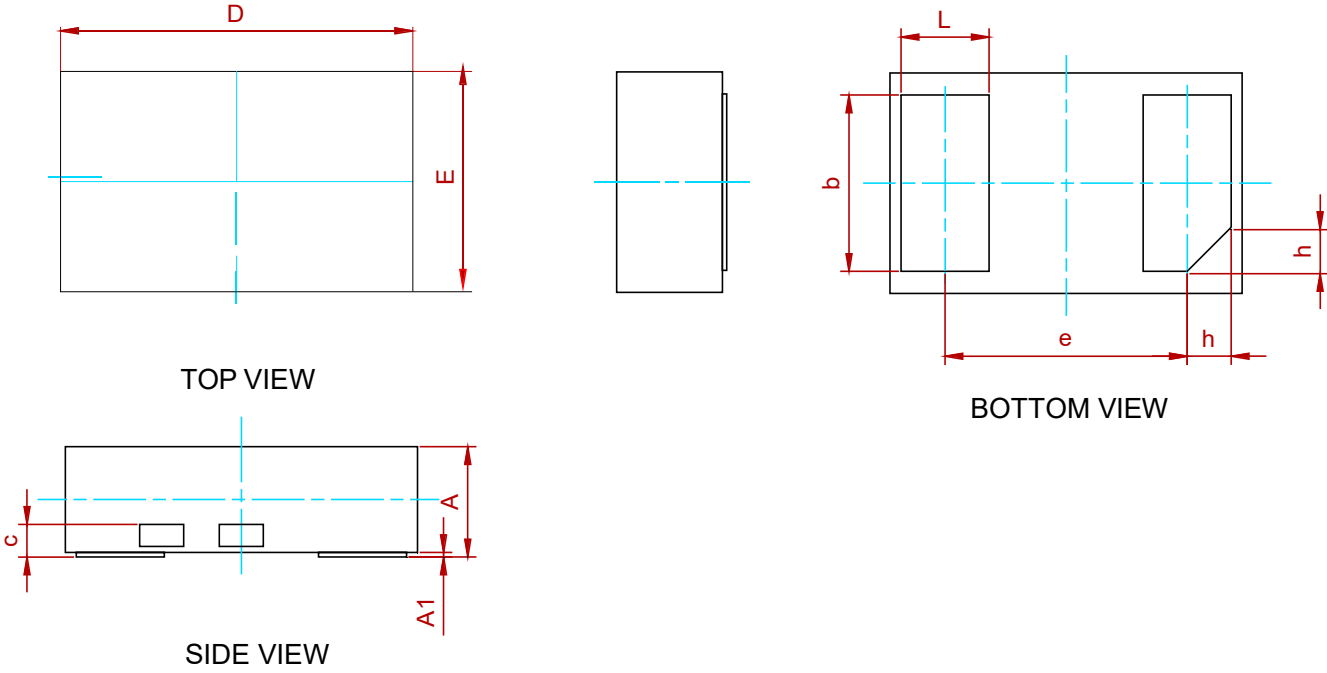


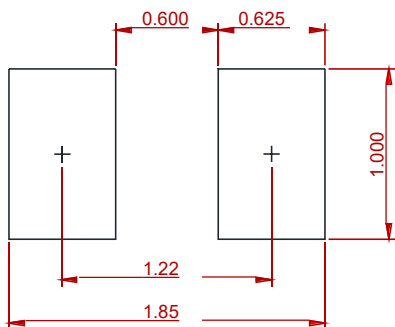
Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time

**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
PTVSHC2EN12VU-MS	DFN1610-2L	3000

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