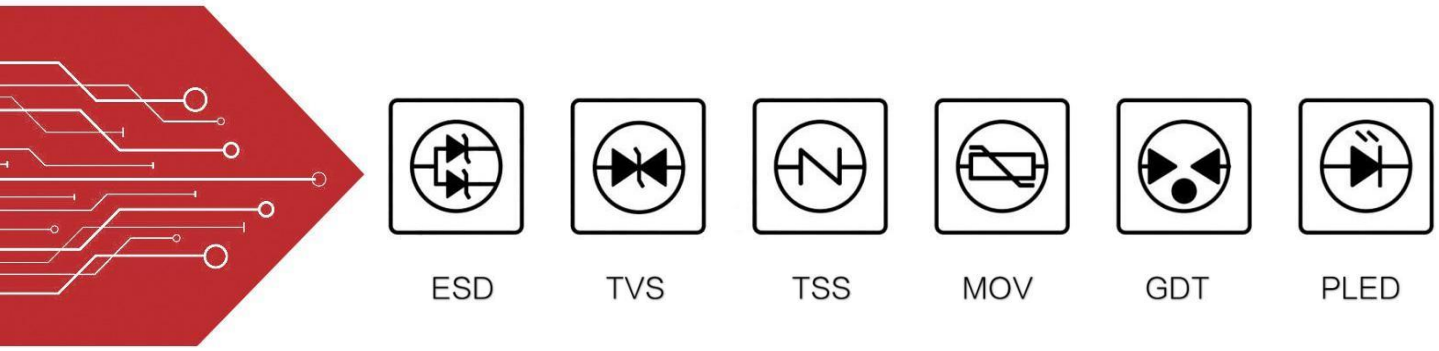
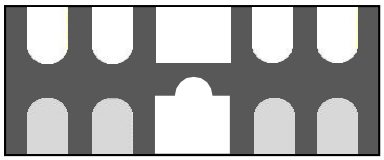
MSKSEMI
SEMICONDUCTOR



Product data sheet

- Solid-state silicon-avalanche technology
- Low operating and clamping voltage
- Up to four I/O Lines of Protection
- Ultra low capacitance: 0.5pF typical(I/O to I/O)
- Low Leakage
- Low operating voltage:3.3V
- Flow-Through design



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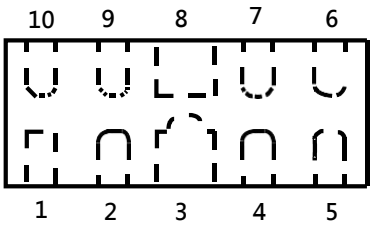


IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 5A (8/20μs)**

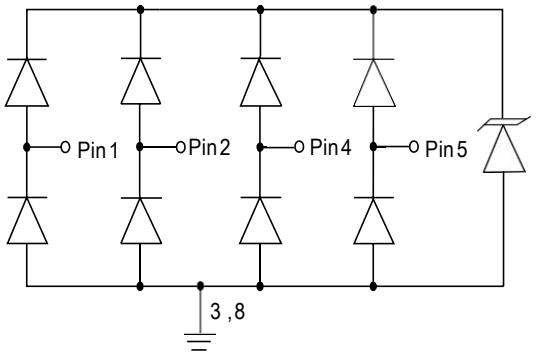
Schematic & PIN Configuration

Pin	Identificaion
1,2,4,5	Input Lines
6,7,9,10	Output Lines (No Internal Connection)
3,8	Ground

Mechanical Characteristics

- Molding compound flammability rating: UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Circuit Diagram



4-Line Protection

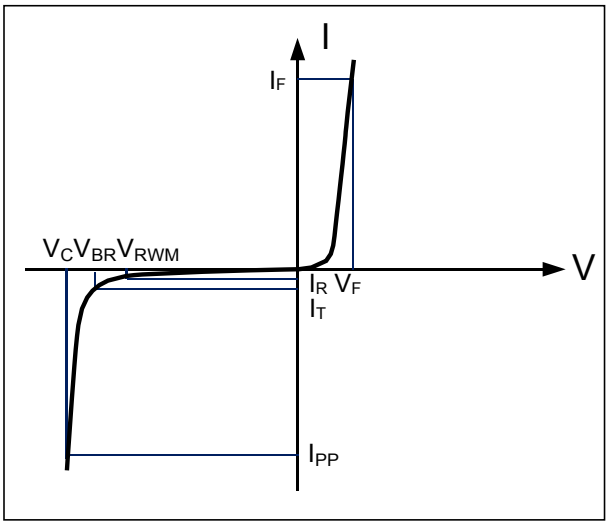
Applications

- Digital Visual Interface(DVI)
- MDDI Ports
- DisplayPortTM Interface
- PCI Express
- High Definition Multi-Media Interface(HDMI)
- eSATA Interfaces

Rating	Symbol	Value	Units
Peak Pulse Power (t_p =8/20μs)	P_{PP}	150	Watts
Peak Pulse Current (t_p =8/20μs)	I_{pp}	5	A
ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2(contact)	V_{ESD}	+/-17 +/-12	kV
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25°C)

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

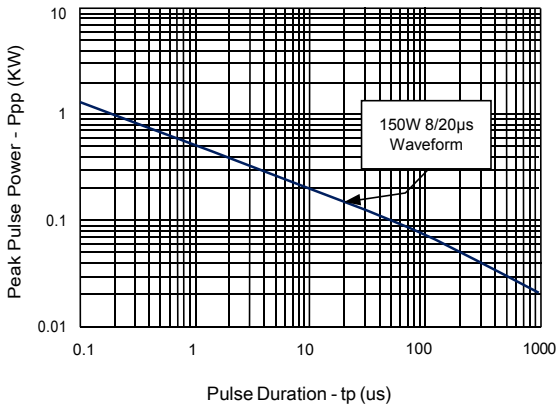


Electrical Characteristics

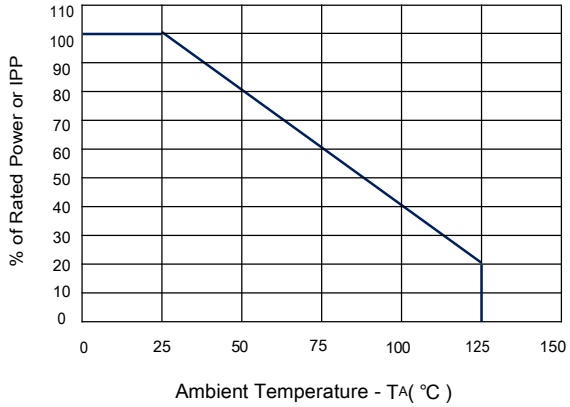
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}	Any I/O pin to ground			3.3	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA Any I/O pin to ground	6.0			V
Reverse Leakage Current	I_R	V_{RWM} = 5V, T=25°C Any I/O pin to ground			1	μA
Clamping Voltage	Vc	I_{pp}=5A, t_p=8/20μs Any I/O pin to ground			15	V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz I/O pin to GND			0.8	pF
		V_R = 0V, f = 1MHz Between I/O pins		0.3		pF

Typical Characteristics

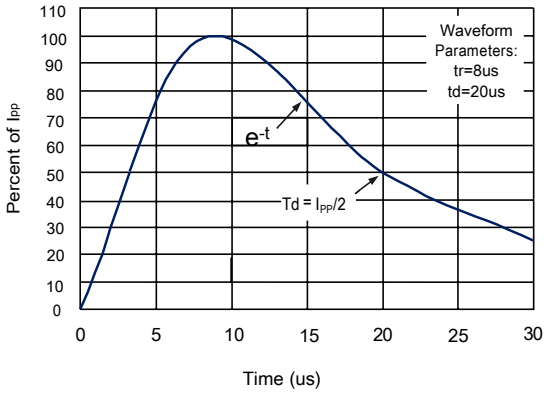
Non-Repetitive Peak Pulse Power vs. Pulse Time



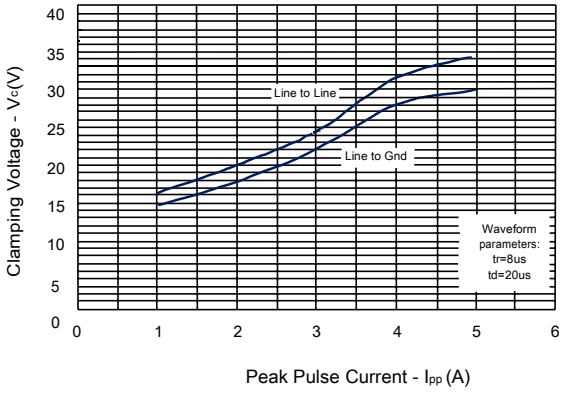
Power Derating curve



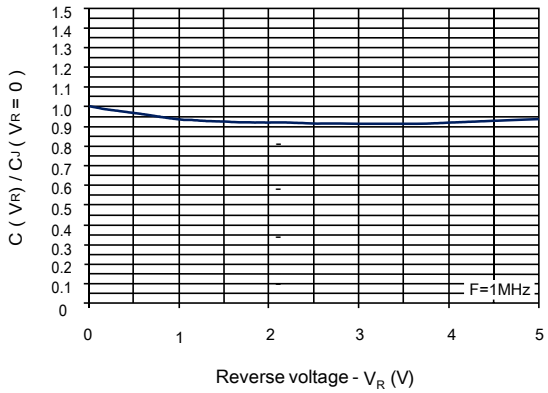
Pulse Waveform



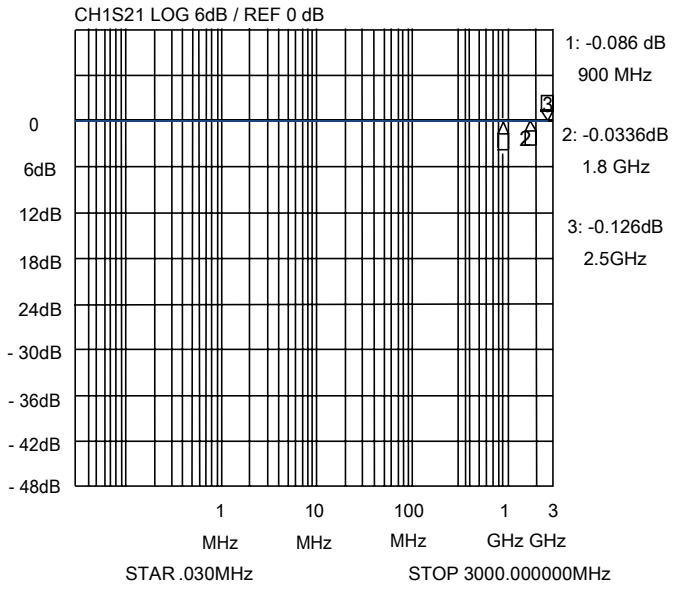
Clamping Voltage vs. Peak Pulse Current



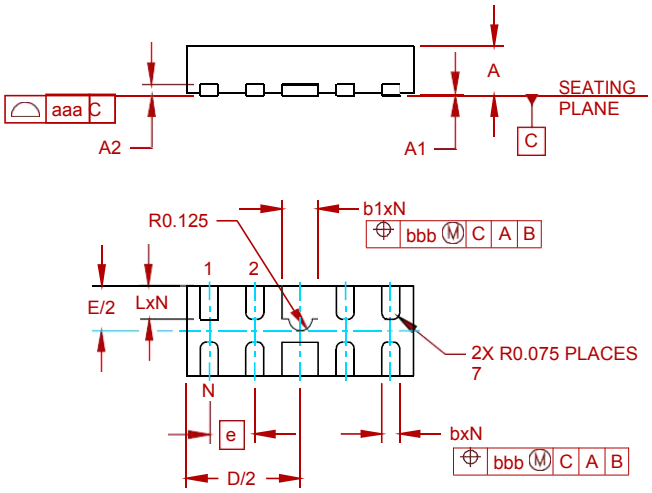
Normalized Capacitance vs. Reverse Voltage

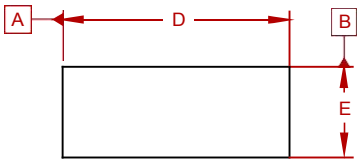


Insertion Loss S21 - I/O to GND



PACKAGE MECHANICAL DATA

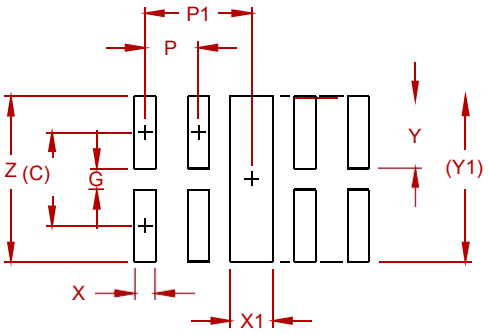




Dimensions in millimeters

DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.023	.026	0.50	0.58	0.65
A1	0.00	.001	.002	0.00	0.03	0.05
A2		(.005)			(0.13)	
b	.006	.008	.010	0.15	0.20	0.25
b1	.014	.016	.018	0.35	0.40	0.45
D	.094	.098	.102	2.40	2.50	2.60
E	.035	.039	.043	0.90	1.00	1.10
e		.020 BSC			0.50 BSC	
L	.012	.015	.017	0.30	0.38	0.425
N		8			8	
aaa		.003			0.08	
bbb		.004			0.10	

Suggested Pad Layout



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.034)	(0.875)
G	.008	0.20
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.675
Y1	(.061)	(1.55)
Z	.061	1.55

NOTES:

CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

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REEL SPECIFICATION

P/N	PKG	QTY
TPD4E05U06DQAR-MS	uSON-10	3000

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