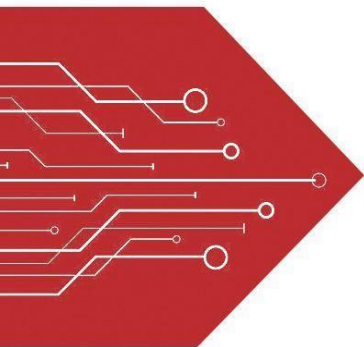


MSKSEMI

SEMICONDUCTOR



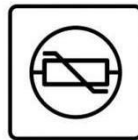
ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

www.msksemi.com

Feature

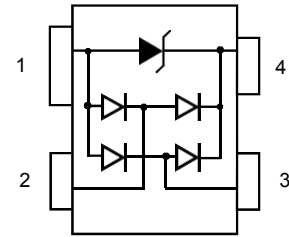
- 350 W Peak Power per Line ($t_p = 8/20\mu s$)
- SOT-143 package
- ESD Protection > 15 kV
- Unidirectional configurations
- Protects 2 I/O Ports & Power Supply
- Low clamping voltage
- RoHS Compliant in Lead-Free Versions
- Transient protection for data lines to IEC 61000-4-2(ESD)
- $\pm 15KV(\text{air}) \pm 8KV(\text{contact});$ IEC 61000-4-4 (EFT) 40A (5/50ns)

Applications

- Ethernet - 10/100 Base T
- Fire wire
- Wireless communications
- USB interface

Mechanical Characteristics

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 μm
- Pin flatness : $\leq 3\text{mil}$



SOT-143

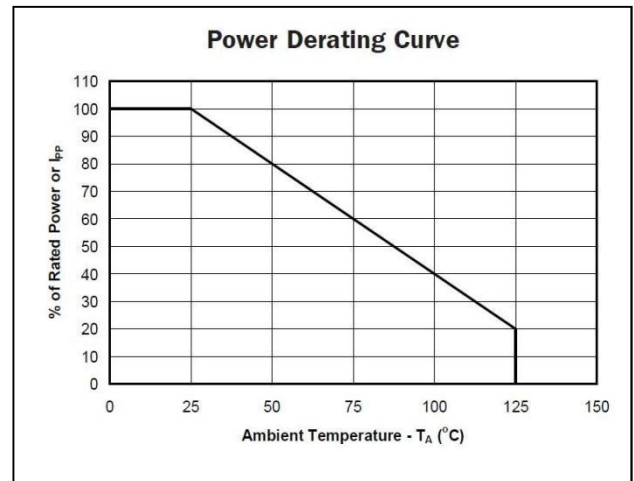
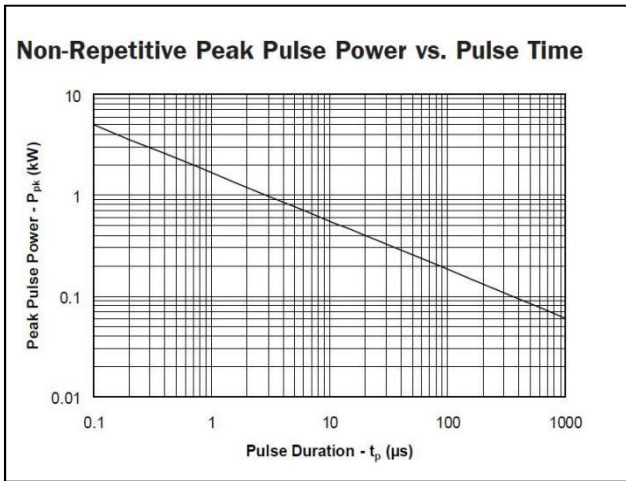
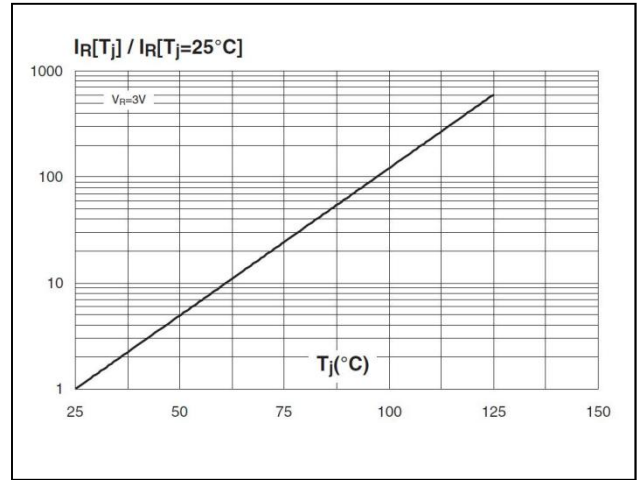
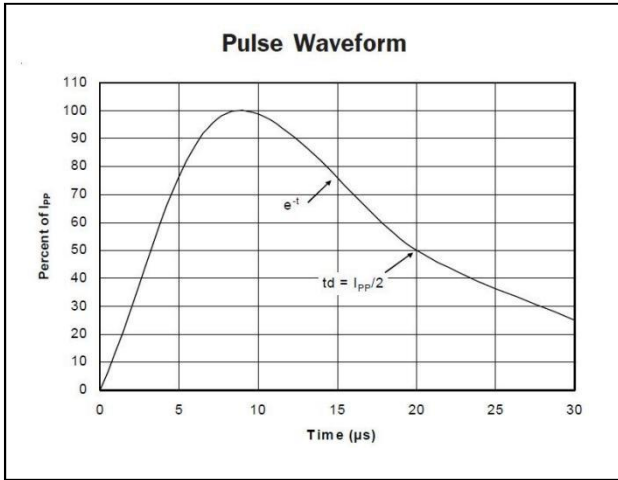
Electrical characteristics per line@(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6		8.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5.0\text{V}, T = 25^\circ\text{C}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu s$			12.5	V
Clamping Voltage	V_C	$I_{PP} = 5\text{A}, t_p = 8/20\mu s$			24.0	V
Capacitance Between IO and GND	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		3.0		pF
Capacitance Between IO and I/O	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		1.5		pF

Absolute maximum rating@25°C

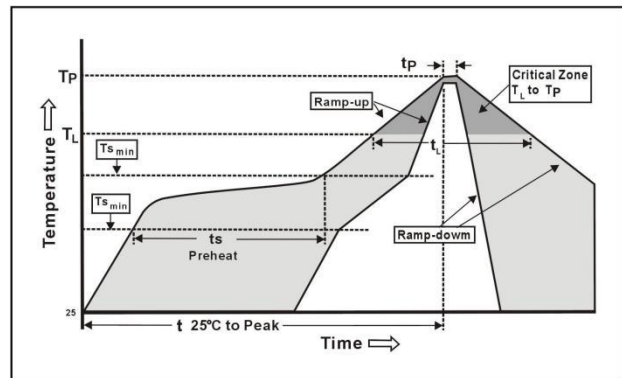
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pp}	350	W
Peak Pulse Power ($t_p = 8/20\mu s$)	I_{pp}	9	A
Operating Temperature	T_J	-55 to +150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Typical Characteristics@ Ta=25°C unless otherwise specified

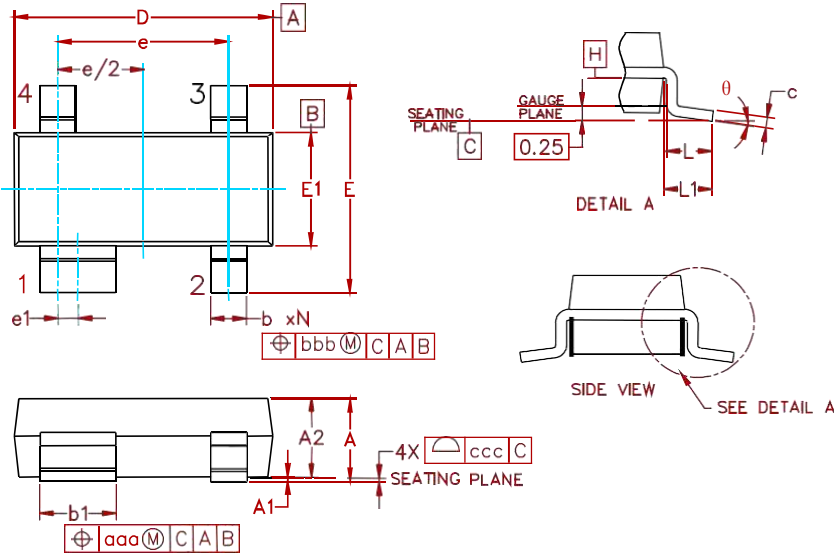


Soldering Parameters

Reflow Condition		Fb – Free assembly
Pre Heat	- Temperature Min ($T_{s(Min)}$)	150°C
	- Temperature Max ($T_{s(Max)}$)	200°C
	- Time (Min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus) Temp (T_L) to peak		3°C/second Max
$T_{s(Max)}$ to T_L - Ramp-up Rate		3°C/second Max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_l)	60 – 150 seconds
Peak Temperature (T_p)		250 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second Max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C

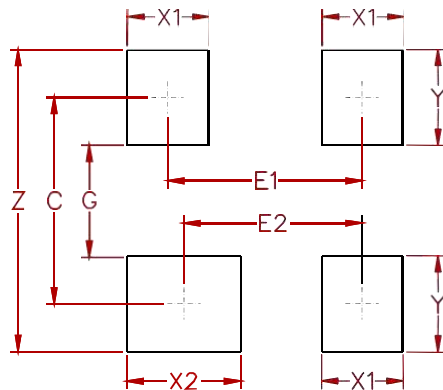


PACKAGE MECHANICAL DATA



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	-	0.048	0.80	-	1.22
A1	0.000	-	0.008	0.013	-	0.15
A2	0.020	0.035	0.042	0.75	0.90	1.07
b	0.011	-	0.020	0.30	-	0.51
b1	0.029	-	0.037	0.76	-	0.94
c	0.003	-	0.008	0.08	-	0.20
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.92 BSC		
e1	0.008			0.20 BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	(0.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	0.006			0.15		
bbb	0.008			0.20		
ccc	0.004			0.10		

Suggested Pad Layout



REEL SPECIFICATION

P/N	PKG	QTY
ESD05V14T-MS	SOT-143	3000

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