

Features

- Ultra low leakage: nA level
- Working voltages: 5V, 12V, 15V and 24V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

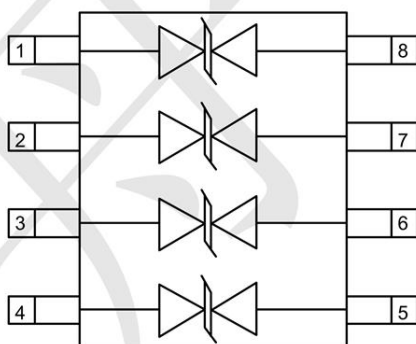
Mechanical Characteristics

- Package: SOP-8
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Shipping Qty : 2500pcs/13Inch Tape & Reel

Applications

- Data and I/O Lines
- Microprocessor based equipment
- LAN/WAN equipment
- Serial and Parallel Ports

Dimensions and Pin Configuration



SOP8

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	300	W
ESD per IEC 61000-4-2 (Air)	VESD	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	TJ	-40 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

TPSMDA05C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5.0	V	
Reverse Breakdown Voltage	VBR	6.0				It = 1.0mA
Reverse Leakage Current	IR			1.0	μA	VRWM = 5.0V
Clamping Voltage	VC			12	V	Ipp = 7A (8 x 20μs pulse)
Clamping Voltage	VC		15	20	V	Ipp = 15A (8 x 20μs pulse)
Maximun Peak Pulse Current	Ipp			15	A	tp=8/20 us
Junction Capacitance	CJ			200	pF	VR = 0V, f = 1MHz

TPSMDA12C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			12	V	
Reverse Breakdown Voltage	VBR	13.5				$I_t = 1.0\text{mA}$
Reverse Leakage Current	I_R			1.0	μA	$V_{RWM} = 12\text{V}$
Clamping Voltage	Vc			19	V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	Vc			24	V	$I_{PP} = 10\text{A}$ (8 x 20 μs pulse)
Maximun Peak Pulse Current	I_{pp}			10	A	$t_p = 8/20\text{ us}$
Junction Capacitance	CJ			70	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

TPSMDA15C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			15	V	
Reverse Breakdown Voltage	VBR	16				$I_t = 1.0\text{mA}$
Reverse Leakage Current	I_R			1.0	μA	$V_{RWM} = 15\text{V}$
Clamping Voltage	Vc			24	V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	Vc			35	V	$I_{PP} = 8\text{A}$ (8 x 20 μs pulse)
Maximun Peak Pulse Current	I_{pp}			8	A	$t_p = 8/20\text{ us}$
Junction Capacitance	CJ			60	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

TPSMDA24C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			24	V	
Reverse Breakdown Voltage	VBR	26.5				It = 1.0mA
Reverse Leakage Current	IR			1.0	μA	VRWM = 24 V
Clamping Voltage	VC			43	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	VC			55	V	I _{PP} = 5 A (8 x 20μs pulse)
Maximun Peak Pulse Current	I _{pp}			8	A	tp=8/20 us
Junction Capacitance	CJ			50	pF	VR = 0V, f = 1MHz

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig1. 8/20 μs Pulse Waveform

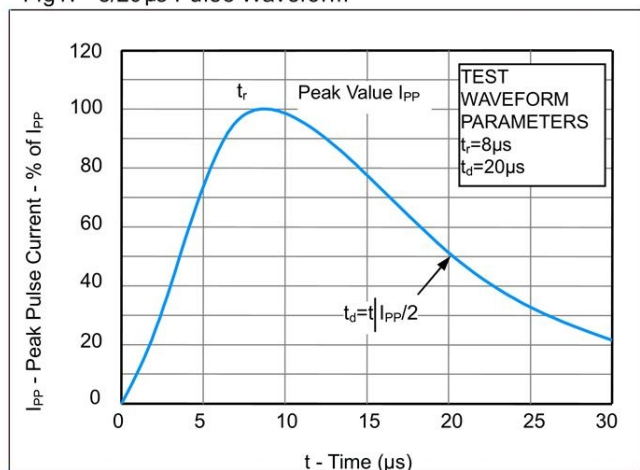


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

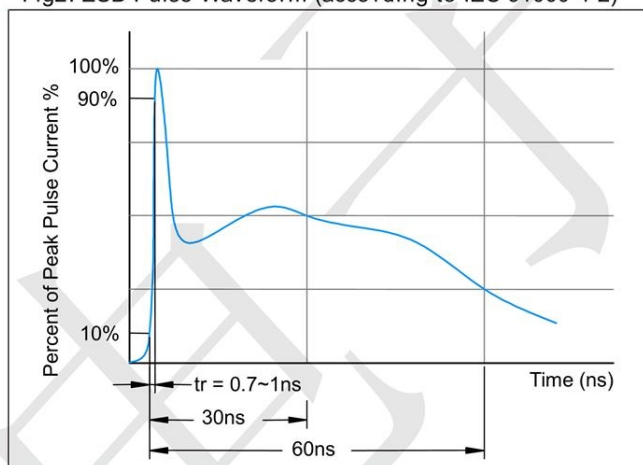
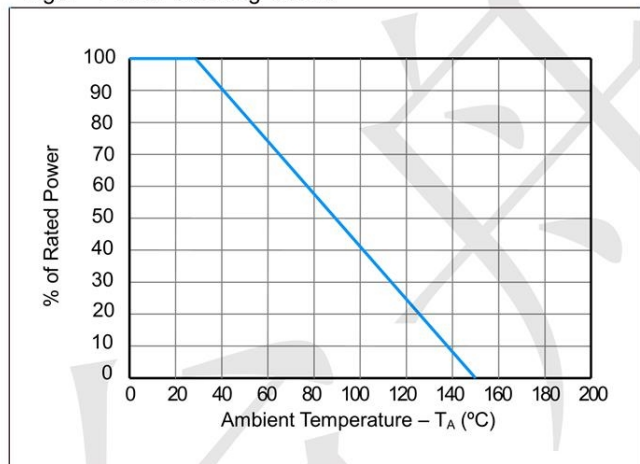
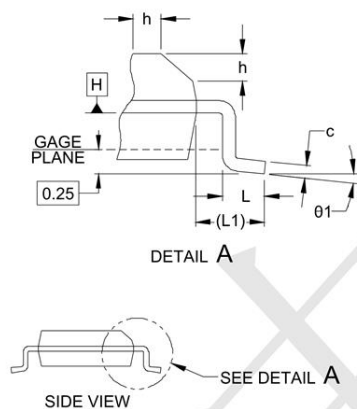
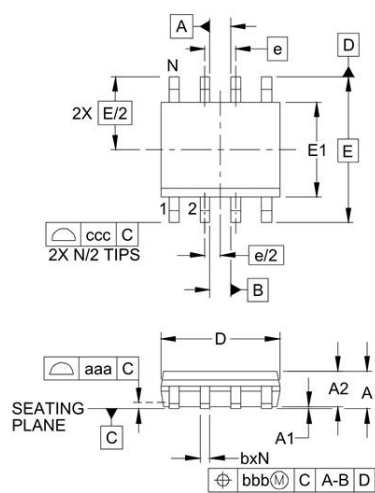


Fig3. Power Derating Curve



SOP-8 Package Outline Drawing



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.053	-	.069	1.35	-	1.75
A1	.004	-	.010	0.10	-	0.25
A2	.049	-	.065	1.25	-	1.65
b	.012	-	.020	0.31	-	0.51
c	.007	-	.010	0.17	-	0.25
D	.189	.193	.197	4.80	4.90	5.00
E	.150	.154	.157	3.80	3.90	4.00
E1	.236	BSC		6.00	BSC	
e	.050	BSC		1.27	BSC	
h	.010	-	.020	0.25	-	0.50
L	.016	.028	.041	0.40	0.72	1.04
L1		.041			1.04	
N	8			8		
01	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.010			0.25		
ccc	.008			0.20		

Suggested Land Pattern

