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台舟电子

TPSMDA05C THRU TPSMDA24C

Bidirectional TVS Array for Protection of Four Lines

www.sot23.com.tw

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: ±30kV
    Contact discharge: ±30kV
  – IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

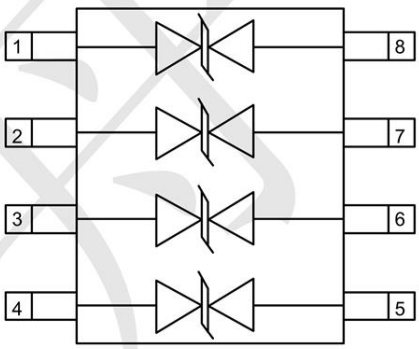
Mechanical Characteristics

- 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) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−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	V_{RWM}			5.0	V	
Reverse Breakdown Voltage	V_{BR}	6.0				I_t = 1.0mA
Reverse Leakage Current	I_R			1.0	μA	V_{RWM} = 5.0V
Clamping Voltage	V_C			12	V	I_{PP} = 7A (8 x 20μs pulse)
Clamping Voltage	V_C		15	20	V	I_{PP} = 15A (8 x 20μs pulse)
Maximun Peak Pulse Current	Ipp			15	A	tp=8/20 us
Junction Capacitance	C_J			200	pF	VR = 0V, f = 1MHz

TPSMDA12C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			12	V	
Reverse Breakdown Voltage	V_{BR}	13.5				I_t = 1.0mA
Reverse Leakage Current	I_R			1.0	μA	V_{RWM} = 12 V
Clamping Voltage	V_C			19	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			24	V	I_{PP} = 10A (8 x 20μs pulse)
Maximun Peak Pulse Current	Ipp			10	A	tp=8/20 us
Junction Capacitance	C_J			70	pF	VR = 0V, f = 1MHz

TPSMDA15C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			15	V	
Reverse Breakdown Voltage	V_{BR}	16				I_t = 1.0mA
Reverse Leakage Current	I_R			1.0	μA	V_{RWM} = 15 V
Clamping Voltage	V_C			24	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			35	V	I_{PP} = 8 A (8 x 20μs pulse)
Maximun Peak Pulse Current	Ipp			8	A	tp=8/20 us
Junction Capacitance	C_J			60	pF	VR = 0V, f = 1MHz

TPSMDA24C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			24	V	
Reverse Breakdown Voltage	V_{BR}	26.5				I_t = 1.0mA
Reverse Leakage Current	I_R			1.0	μA	V_{RWM} = 24 V
Clamping Voltage	V_C			43	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			55	V	I_{PP} = 5 A (8 x 20μs pulse)
Maximun Peak Pulse Current	Ipp			8	A	tp=8/20 us
Junction Capacitance	C_J			50	pF	VR = 0V, f = 1MHz

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig1. 8/20μs Pulse Waveform

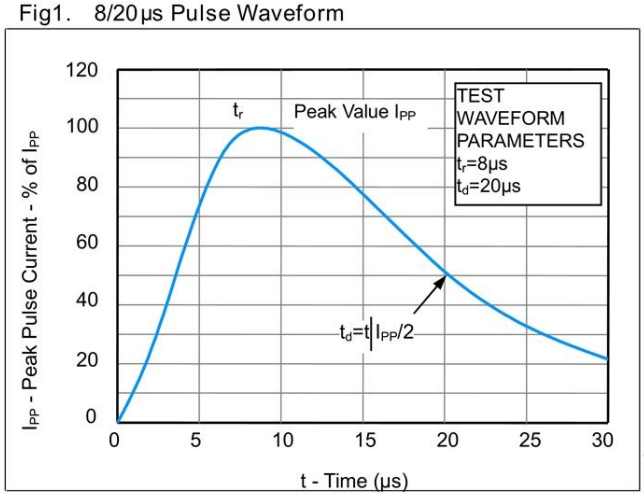


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

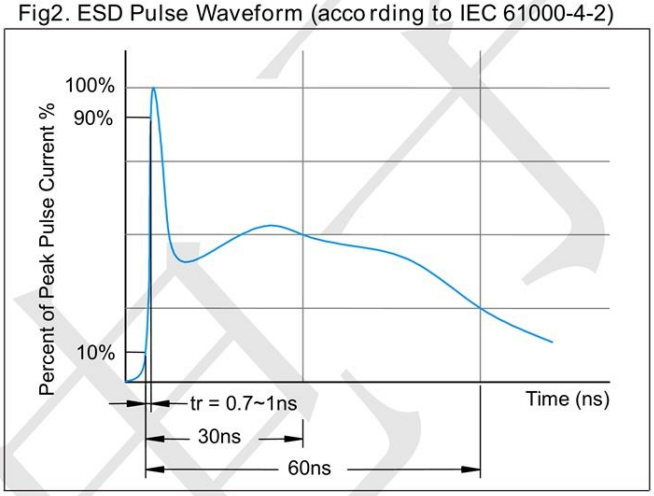
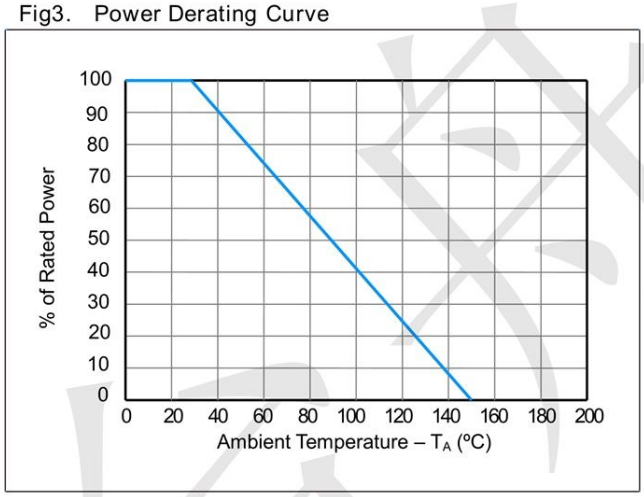
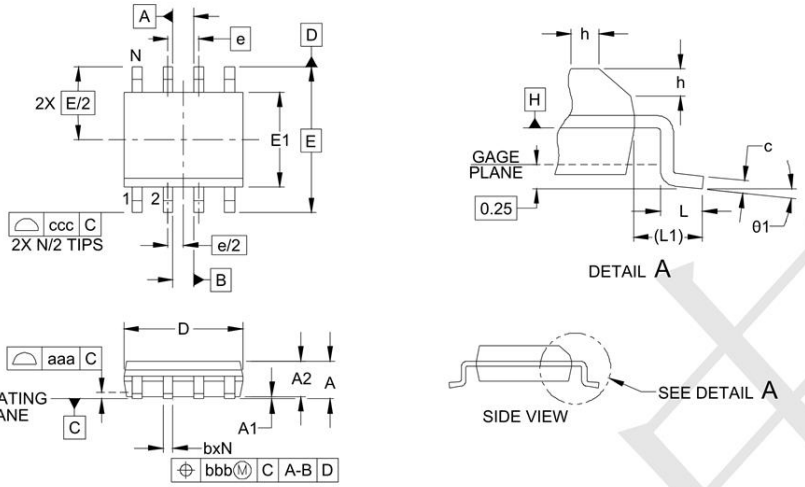


Fig3. Power Derating Curve



SOP-8 Package Outline Drawing



DIM	DIMENSIONS					
	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
E1	.150	.154	.157	3.80	3.90	4.00
E	.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		
θ1	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.010			0.25		
ccc	.008			0.20		

Suggested Land Pattern