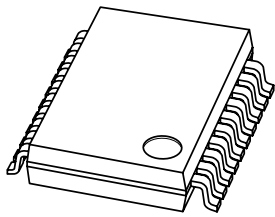


DATA SHEET



PESD5V2S18U ESD protection array

Product data sheet

2003 Apr 28

ESD protection array

PESD5V2S18U

FEATURES

- Uni-directional ESD protection of up to 18 lines
- Maximum peak reverse power: $P_{PP} = 100\text{ W}$ at $t_p = 8/20\ \mu\text{s}$
- Low clamping voltage: $V_{CL} = 12\text{ V}$ max. at $I_{ZSM} = 10\text{ A}$
- Low leakage current: $I_R = 100\text{ nA}$ typ. at $V_{RWM} = 5.2\text{ V}$
- IEC 61000-4-2, level 4 (ESD); 15 kV (air) and 8 kV (contact).

APPLICATIONS

- Printer parallel ports
- Computers and peripherals
- Communication systems.

DESCRIPTION

Monolithic ESD protection device designed to protect up to 18 transmission or data lines from the damage caused by electrostatic discharge (ESD) and surge pulses.

PINNING

PIN	DESCRIPTION
1 to 5	cathode (k1 to k5)
6 and 16	common anode (a1; a2)
7 to 15	cathode (k6 to k14)
17 to 20	cathode (k15 to k18)

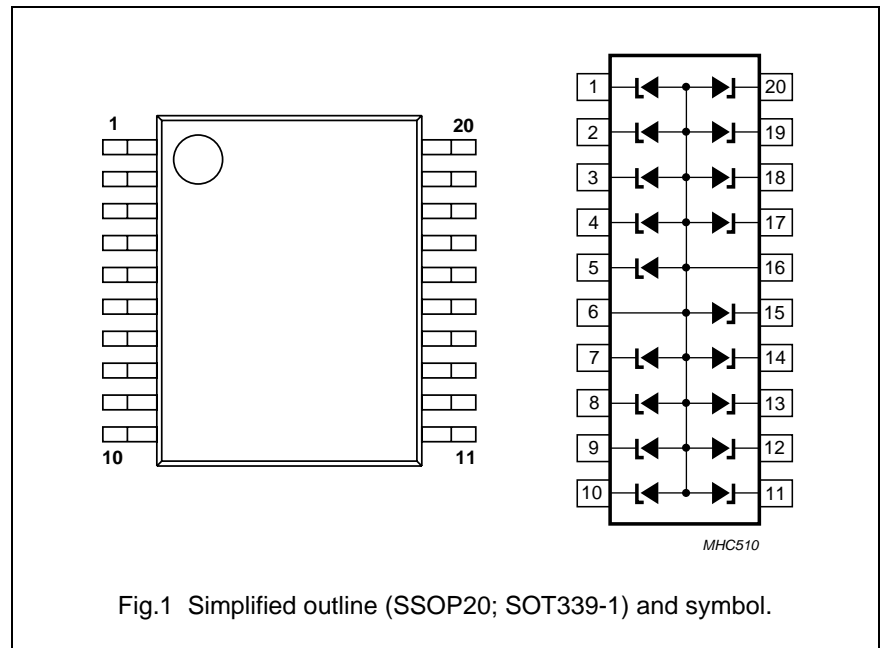


Fig.1 Simplified outline (SSOP20; SOT339-1) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{PP}	non-repetitive peak reverse current	$t_p = 8/20\ \mu\text{s}$	–	10	A
P_{PP}	non-repetitive peak reverse power dissipation	$t_p = 8/20\ \mu\text{s}$	–	100	W
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C
	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	30	–	kV
		HBM MIL-Std 883	10	–	kV

ESD standards compliance

IEC 61000-4-2, level 4 (ESD)	>15 kV (air); >8 kV (contact)
HBM MIL-Std 883, class 3	>4 kV

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	one or more diodes loaded	135	K/W

Note

1. Refer to SOT339-1 standard mounting conditions.

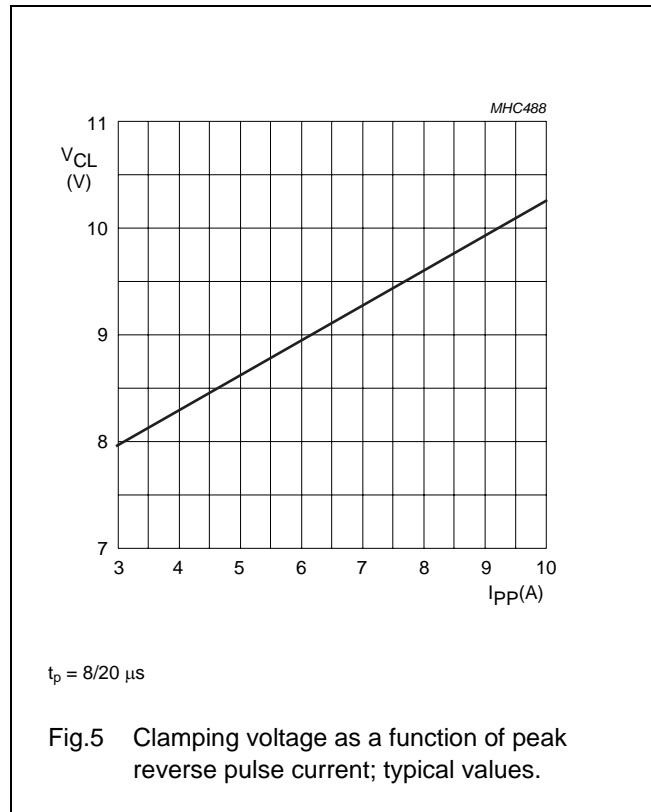
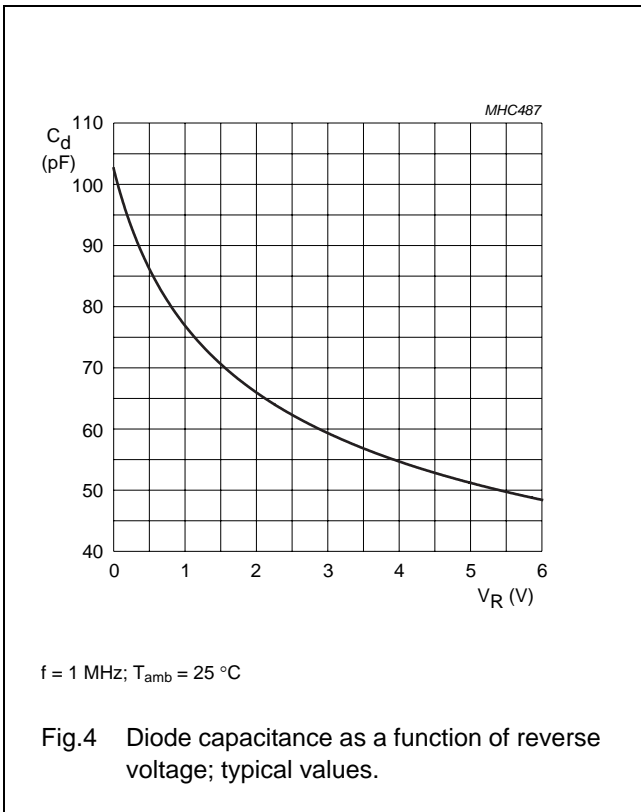
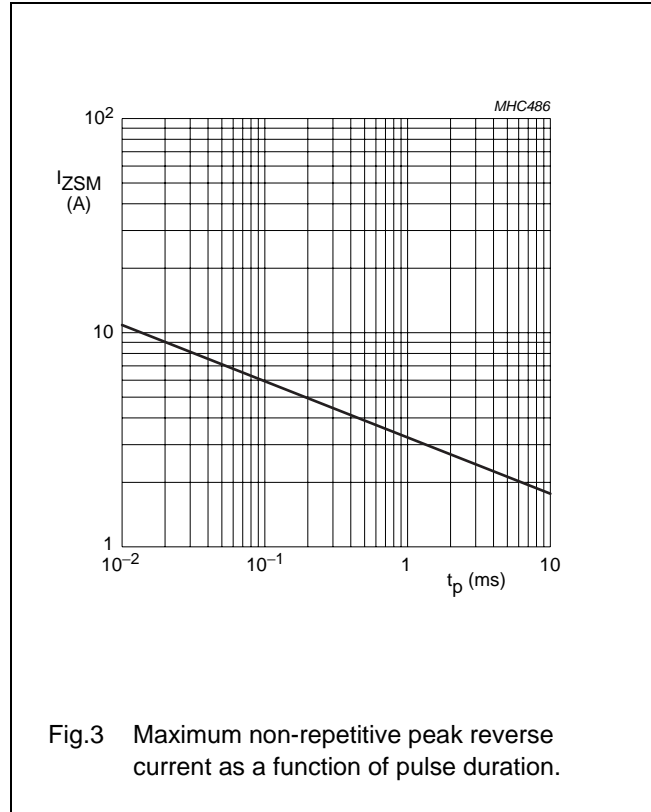
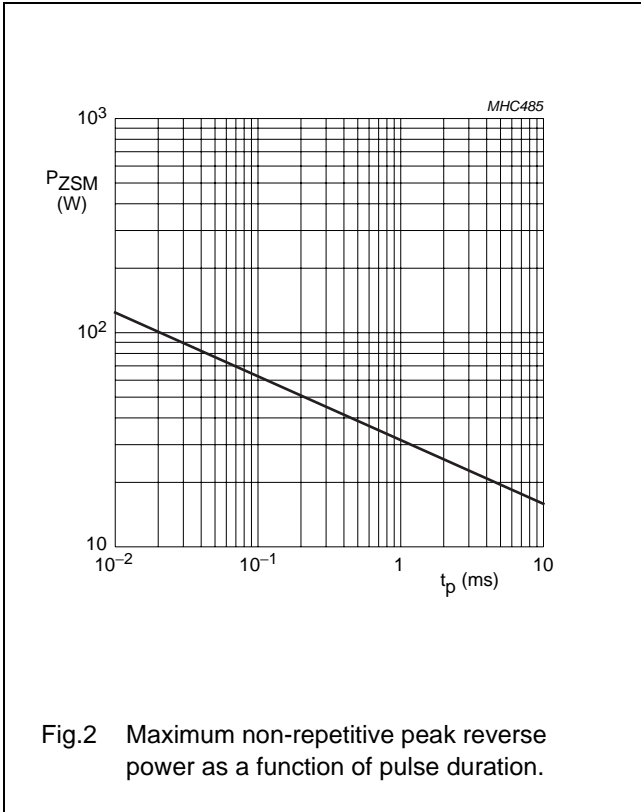
ELECTRICAL CHARACTERISTICS

$T_{amb} = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{RWM}	crest working reverse voltage		–	–	5.2	V
I_R	reverse current	$V_{RWM} = 5.2\text{ V}$	–	0.1	1	μA
V_{CL}	clamping voltage	$I_{ZSM} = 3\text{ A}; t_p = 8/20\ \mu\text{s}; \text{ see Fig.5}$	–	–	8	V
		$I_{ZSM} = 10\text{ A}; t_p = 8/20\ \mu\text{s}; \text{ see Fig.5}$	–	–	12	V
V_{BR}	breakdown voltage	$I_Z = 5\text{ mA}$	6.4	6.8	7.2	V
r_{diff}	differential resistance	$I_Z = 1\text{ mA}$	–	–	40	Ω
		$I_Z = 5\text{ mA}$	–	–	8	Ω
C_d	diode capacitance	$V_R = 0; f = 1\text{ MHz}; \text{ see Fig.4}$	–	100	–	pF

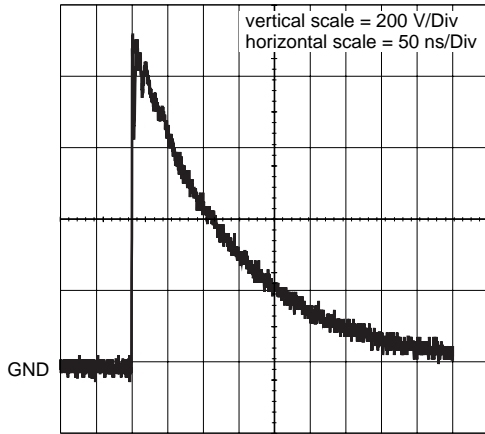
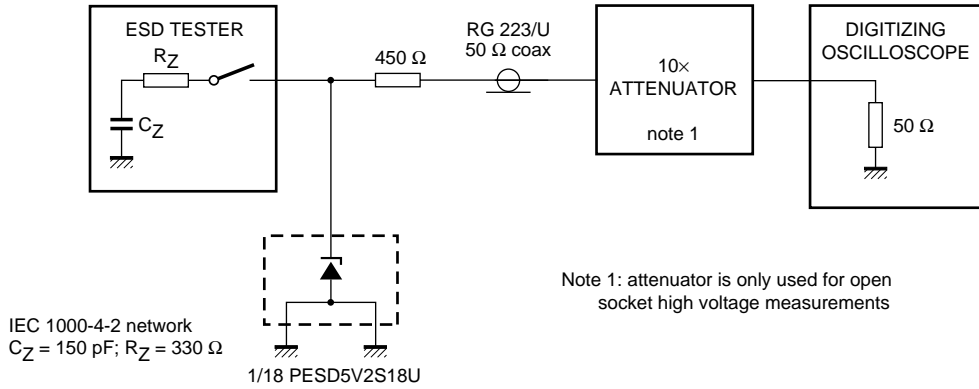
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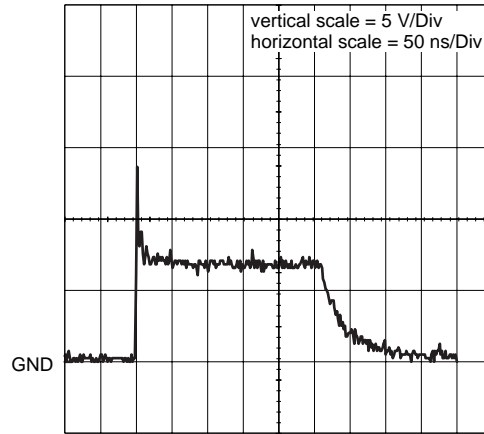


ESD protection array

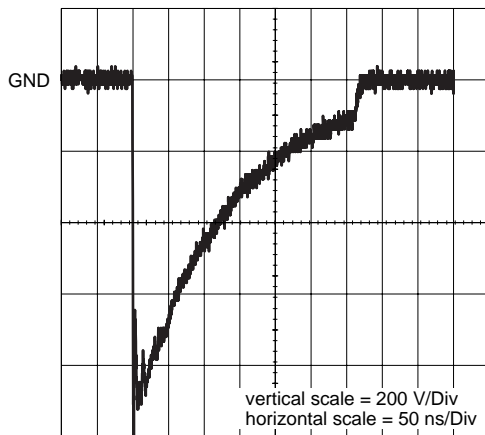
PESD5V2S18U



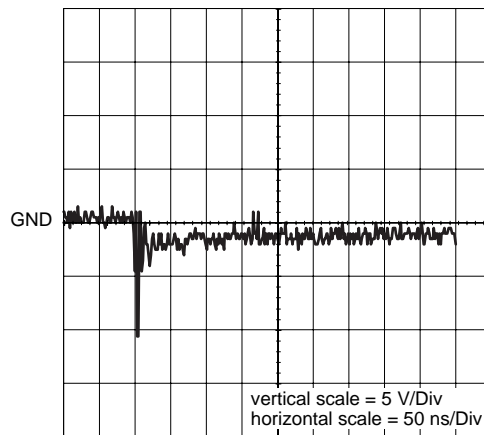
unclamped +1 kV ESD voltage waveform (IEC 1000-4-2 network)



clamped +1 kV ESD voltage waveform (IEC 1000-4-2 network)



unclamped -1 kV ESD voltage waveform (IEC 1000-4-2 network)



clamped -1 kV ESD voltage waveform (IEC 1000-4-2 network)

MHC489

Fig.6 ESD clamping test set-up and waveforms.

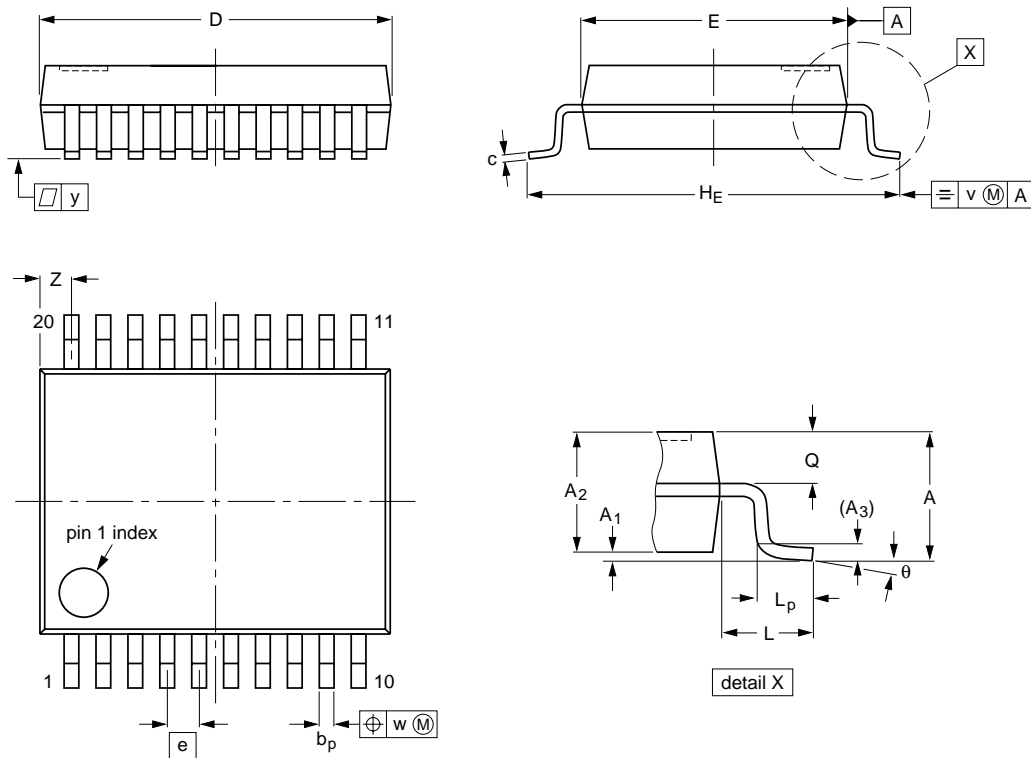
ESD protection array

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PACKAGE OUTLINE

SSOP20: plastic shrink small outline package; 20 leads; body width 5.3 mm

SOT339-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	z ⁽¹⁾	θ
mm	2	0.21 0.05	1.80 1.65	0.25	0.38 0.25	0.20 0.09	7.4 7.0	5.4 5.2	0.65	7.9 7.6	1.25	1.03 0.63	0.9 0.7	0.2	0.13	0.1	0.9 0.5	8° 0°

Note

1. Plastic or metal protrusions of 0.2 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT339-1		MO-150				99-12-27 03-02-19

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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