

**CMXESD70-4****SURFACE MOUNT SILICON  
LOW CAPACITANCE  
ESD PROTECTION  
4-LINE DIODE ARRAY**
[www.centrasemi.com](http://www.centrasemi.com)
**SOT-26 CASE****DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMXESD70-4 is a 4-line silicon diode array packaged in the SOT-26 surface mount case. This device, with its low capacitance, is designed to protect four high speed data or transmission lines from over-voltage transients and ESD damage.

**MARKING CODE: CTV70****APPLICATIONS:**

- USB 2.0 power and data line protection
- HDMI
- DVI
- Ethernet ports

**FEATURES:**

- Low capacitance
- Protects four I/O lines
- Protects supply voltage rail

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

Peak Repetitive Reverse Voltage
Continuous Reverse Voltage
Continuous Forward Current
Peak Repetitive Forward Current
Peak Forward Surge Current, $t_p=1.0\mu\text{s}$
Peak Forward Surge Current, $t_p=1.0\text{s}$
ESD Voltage (IEC 61000-4-2, Air)
ESD Voltage (IEC 61000-4-2, Contact)
Operating and Storage Junction Temperature
Thermal Resistance

**SYMBOL**

$V_{RRM}$	70
$V_R$	70
$I_F$	200
$I_{FRM}$	450
$I_{FSM}$	2.0
$I_{FSM}$	0.5
$V_{ESD}$	15
$V_{ESD}$	8.0
$T_J, T_{stg}$	-55 to +150
$\theta_{JA}$	556

**UNITS**

V
V
mA
mA
A
A
kV
kV
$^\circ\text{C}$
$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS PER DIODE:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_R$	$V_R=3.3\text{V}$		12	30	nA
$I_R$	$V_R=70\text{V}$		0.03	1.0	$\mu\text{A}$
$I_R$	$V_R=70\text{V}, T_J=150^\circ\text{C}$		55	100	$\mu\text{A}$
$BV_R$	$I_R=100\mu\text{A}$	70			V
$V_F$	$I_F=1.0\text{mA}$		0.61	0.715	V
$V_F$	$I_F=10\text{mA}$		0.74	0.855	V
$V_F$	$I_F=50\text{mA}$		0.88	1.0	V
$V_F$	$I_F=150\text{mA}$		1.07	1.25	V
$C_J$	$V_R=0\text{V}, f=1.0\text{MHz}$ (I/O to I/O)		0.45	0.9	pF
$C_J$	$V_R=0\text{V}, f=1.0\text{MHz}$ (I/O to GND)		0.77	1.0	pF

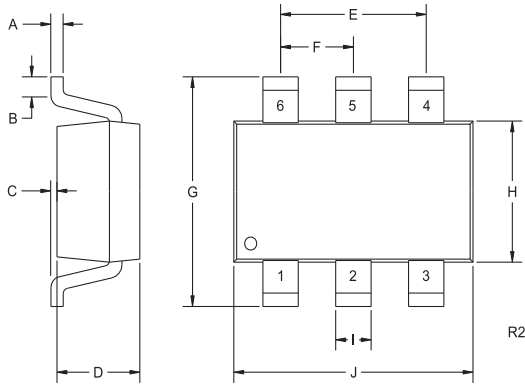
R4 (5-August 2015)

CMXESD70-4

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4-LINE DIODE ARRAY**



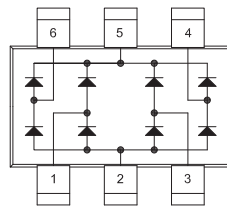
**SOT-26 CASE - MECHANICAL OUTLINE**



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.11	0.19
B	0.016	-	0.40	-
C	-	0.004	-	0.10
D	0.039	0.047	1.00	1.20
E	0.074	0.075	1.88	1.92
F	0.037	0.038	0.93	0.97
G	0.102	0.118	2.60	3.00
H	0.059	0.067	1.50	1.70
I	0.016		0.41	
J	0.110	0.118	2.80	3.00

SOT-26 (REV: R2)

**PIN CONFIGURATION**

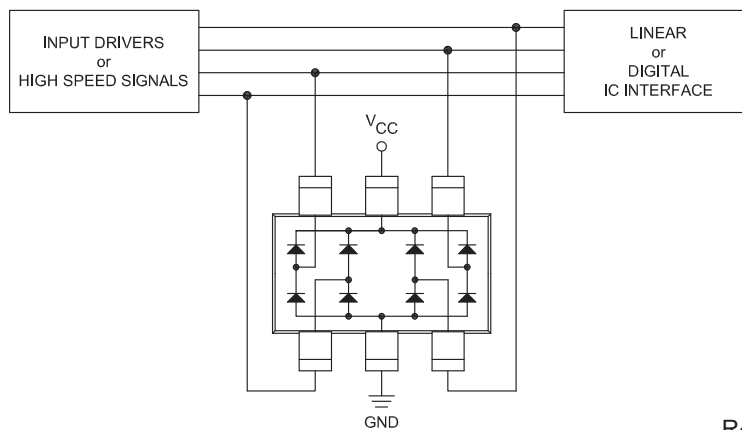


**LEAD CODE:**

- 1) I/O 1
- 2) Ground
- 3) I/O 2
- 4) I/O 3
- 5) Supply Voltage ( $V_{CC}$ )
- 6) I/O 4

**MARKING CODE: CTV70**

**Theory of operation:** In this configuration, when the transient voltage exceeds the sum of the diode forward voltage drop ( $V_F$ ), plus the supply voltage ( $V_{CC}$ ), the diode will direct the surge to the supply, thereby protecting the high speed data line.



R4 (5-August 2015)

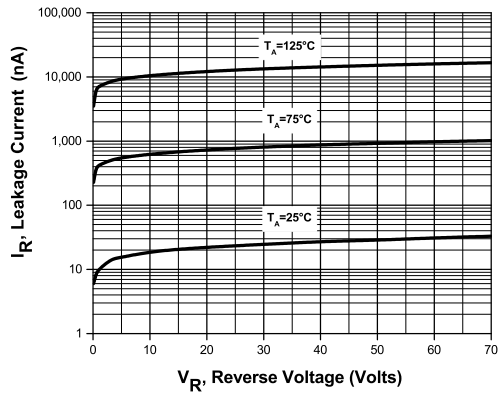
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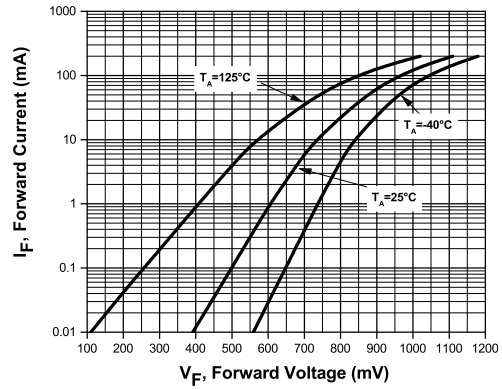


TYPICAL ELECTRICAL CHARACTERISTICS

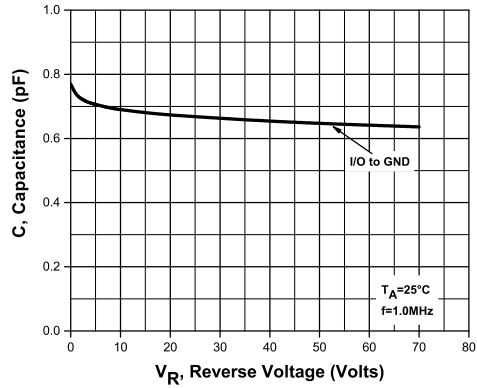
Per Diode Leakage Current



Per Diode Forward Voltage



Capacitance



R4 (5-August 2015)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix " TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix " PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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