

Low Capacitance ESD Protection for High-Speed Serial Interfaces

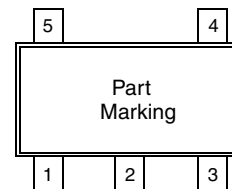
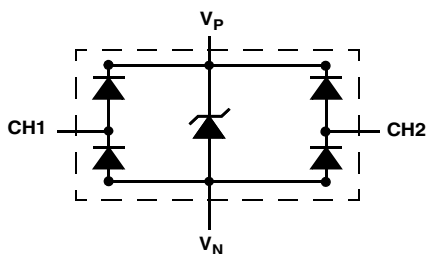
Features

- 2 channels of ESD protection
- 0.85 pF loading capacitance per channel typical
- Provides ESD protection to IEC61000-4-2 Level 4:
 - $\pm 8\text{kV}$ contact discharge
 - $\pm 15\text{kV}$ air discharge
- RoHS compliant, lead-free finish
- 5-pin SOT-553 package

Applications

- LCD and camera data lines in wireless handsets that use high-speed serial interfaces such as MDDI, MIPI, MVI and MPL
- I/O port protection for mobile handsets, notebook computers, PDAs etc.
- Wireless handsets
- Handheld PCs/PDAs
- LCD and camera modules

Electrical Schematic



PIN DESCRIPTIONS

Pin	DESCRIPTION
1	V_P
2	V_N
3	NC
4	(CH1) ESD Channel #1
5	(CH2) ESD Channel #2

Ordering Information

PART NUMBERING INFORMATION

PIN	PACKAGE	LEAD-FREE FINISH	Part Marking
5	SOT-553	CM1263-02SE	L63

Note 1: Parts are shipped in Tape and Reel form unless otherwise specified.

Specifications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNITS
Operating Supply Voltage ($V_P - V_N$)	6.0	V
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-65 to +150	°C
DC Voltage at any channel input	$(V_N - 0.5)$ to $(V_P + 0.5)$	V

ELECTRICAL OPERATING CHARACTERISTICS (SEE NOTE 1)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_P	Operating Supply Voltage ($V_P - V_N$)			3.3	5.5	V
I_P	Operating Supply Current	$(V_P - V_N) = 3.3V$			8.0	μA
V_F	Diode Forward Voltage	$I_F = 8mA$; $T_A = 25^\circ C$				
	Top Diode		0.60	0.80	0.95	V
	Bottom Diode		0.60	0.80	0.95	V
I_{LEAK}	Channel Leakage Current	$T_A = 25^\circ C$; $V_P = 5V$, $V_N = 0V$, $V_{TEST} = 0$ to $5V$		± 0.1	± 1.0	μA
C_{IN}	Channel Input Capacitance	At 1 MHz, $V_P = 3.3V$, $V_N = 0V$, $V_{IN} = 1.65V$; Note 2		0.85	1.2	pF
ΔC_{IN}	Channel Input Capacitance Matching	At 1 MHz, $V_P = 3.3V$, $V_N = 0V$, $V_{IN} = 1.65V$; Note 2		0.02		pF
V_{ESD}	ESD Protection Peak Discharge Voltage at any channel input, in system:					
	a) Contact discharge per IEC 61000-4-2 standard and	$T_A = 25^\circ C$; Notes 2, 3, and 4	± 8			kV
	b) Air discharge per IEC 61000-4-2 standard	$T_A = 25^\circ C$; Notes 2 and 4	± 15			kV
V_{CL}	Channel Clamp Voltage	$T_A = 25^\circ C$, $I_{PP} = 1A$, $t_P = 8/20\mu S$; Notes 2 and 4				
	Positive Transients			+9.96		V
	Negative Transients			-1.6		V
R_{DYN}	Dynamic Resistance	$I_{PP} = 1A$, $t_P = 8/20\mu S$				
	Positive Transients	Any I/O pin to Ground;		0.96		Ω
	Negative Transients	Note 2 and 4		0.5		Ω

Note 1: All parameters specified at $T_A = -40^\circ C$ to $+85^\circ C$ unless otherwise noted.

Note 2: These parameters guaranteed by design and characterization.

Note 3: Standard IEC 61000-4-2 with $C_{Discharge} = 150pF$, $R_{Discharge} = 330\Omega$, $V_P = 3.3V$, V_N grounded.

Note 4: These measurements performed with no external capacitor on V_P (V_P floating).

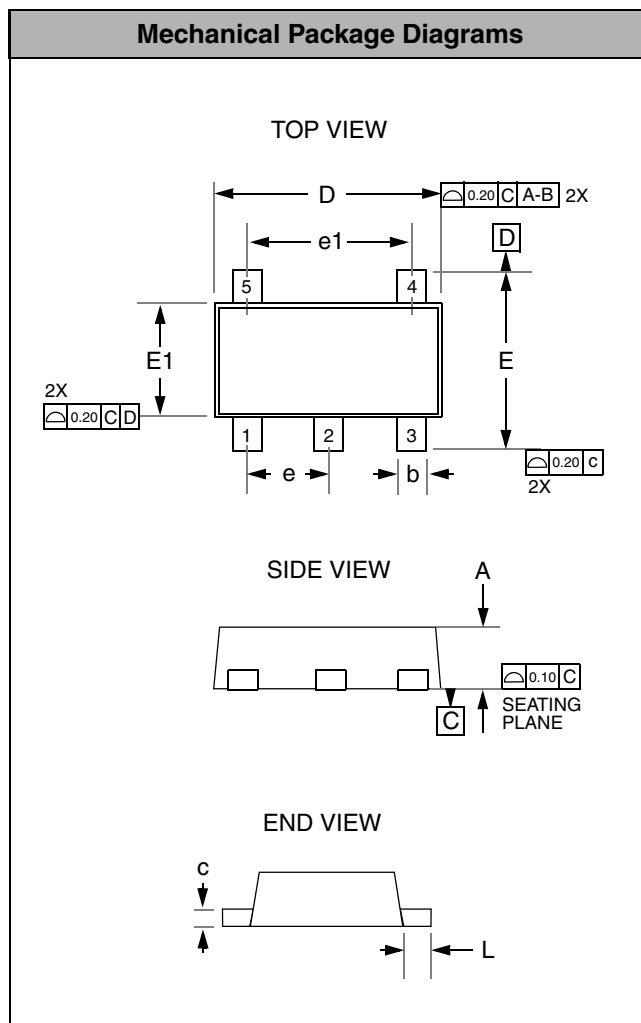
Mechanical Details

SOT-553 Mechanical Specifications, 5 pin

The CM1263-02SE is supplied in a 5-pin SOT-553 package. Dimensions are presented below.

For complete information on the SOT-553, see the California Micro Devices SOT Package Information document.

PACKAGE DIMENSIONS						
Package	SOT-553					
Leads	5					
Dim.	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.50	0.55	0.60	0.020	0.022	0.024
b	0.17	0.22	0.27	0.007	0.009	0.011
c	0.08	0.13	0.18	0.003	0.005	0.007
D	1.60 BSC			0.063 BSC		
E	1.50	1.60	1.70	0.060	0.063	0.067
E1	1.20 BSC			0.047 BSC		
e	0.50 BSC			0.020 BSC		
e1	1.00 BSC			0.040 BSC		
L	0.20 BSC			0.008 BSC		
# per tape and reel	5000 pieces					
Controlling dimension: millimeters						



Package Dimensions for SOT-553

Tape and Reel Specifications

PART NUMBER	PACKAGE SIZE (mm)	POCKET SIZE (mm) $B_0 \times A_0 \times K_0$	TAPE WIDTH W	REEL DIAMETER	QTY PER REEL	P_0	P_1
CM1263-02SE	1.60 X 1.60 X 0.55	1.78 X 1.78 X 0.69	8mm	178mm (7")	5000	4mm	4mm

