

CM1263-06DE

Low Capacitance ESD Protection for High-Speed Serial Interfaces

Features

- 6 Channels of ESD Protection
- 1 pF Loading Capacitance per Channel Typical
- ± 8 kV ESD Protection (IEC 61000-4-2, Contact Discharge)
- ± 15 kV ESD Protection (IEC 61000-4-2, Air Discharge)
- These Devices are Pb-Free and are RoHS Compliant

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



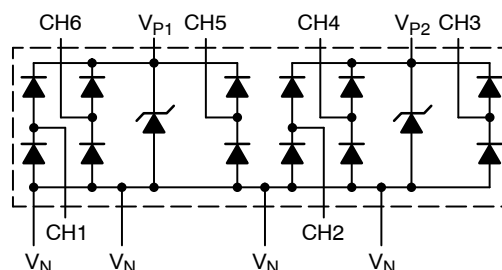
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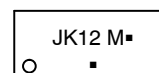


UDFN12
DE SUFFIX
CASE 517BD

BLOCK DIAGRAM



MARKING DIAGRAM



1

JK12 = Specific Device Code
M = Month Code
■ = Pb-Free Package

(*Note: Microdot may be in either location)

*Date Code orientation and/or position may vary depending upon manufacturing location.

ORDERING INFORMATION

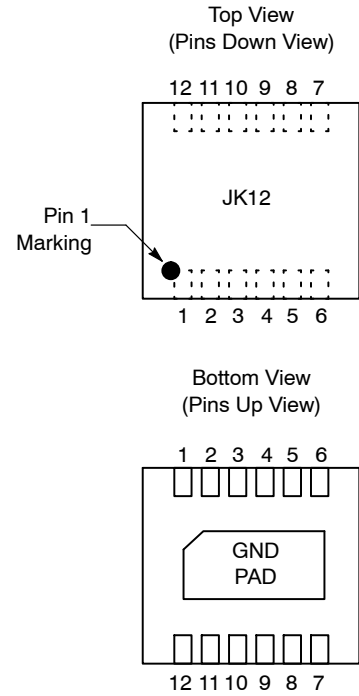
Device	Package	Shipping†
CM1263-06DE	UDFN (Pb-Free)	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

Table 1. PIN DESCRIPTIONS

Pin	Description
1	V_N^*
2	(CH1) ESD Channel #1
3	V_N^*
4	V_N^*
5	(CH2) ESD Channel #2
6	V_N^*
7	(CH3) ESD Channel #3
8	V_{P2} for Channels 2, 3, and 4
9	(CH4) ESD Channel #4
10	(CH5) ESD Channel #5
11	V_{P1} for Channels 1, 5, and 6
12	(CH6) ESD Channel #6
DAP*	Backside, GND Pad, V_N^*

PACKAGE / PINOUT DIAGRAM



12-Lead UDFN Package

SPECIFICATIONS

Table 2. 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

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Table 3. ELECTRICAL OPERATING CHARACTERISTICS (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	$V_P = 3.3$ V, $V_N = 0$ V (per V_P pin)			8.0	μA
V_F	Diode Forward Voltage Top Diode Bottom Diode	$T_A = 25^\circ\text{C}$, $I_F = 8$ mA, $V_P = 3.3$ V, $V_N = 0$ V	0.60 0.60	0.80 0.80	0.95 0.95	V
I_{LEAK}	Channel Leakage Current	$T_A = 25^\circ\text{C}$; $V_P = 3.3$ V, $V_N = 0$ V (Channel 1)			250	nA
		$V_P = 3.3$ V, $V_N = 0$ V (Channels 1–6)			1000	nA
I_R	Reverse (Leakage Current)	$V_P = \text{floating}$; $V_N = 0$ V (per channel)			1000	nA
C_{IN}	Channel Input Capacitance	At 1 MHz, $V_P = 3.3$ V, $V_N = 0$ V, $V_{IN} = 0$ V		0.88	1.2	pF
ΔC_{IN}	Channel Input Capacitance Matching	At 1 MHz, $V_P = 3.3$ V, $V_N = 0$ V, $V_{IN} = 0$ V		0.02		pF
C_{MUTUAL}	Mutual Capacitance between signal pin and adjacent signal pin	At 1 MHz, $V_P = 3.3$ V, $V_N = 0$ V, $V_{IN} = 0$ V		0.11		pF
V_{ESD}	ESD Protection Peak Discharge Voltage at any channel input, in system a) Contact discharge per IEC 61000–4–2 standard b) Air discharge per IEC 61000–4–2 standard	$T_A = 25^\circ\text{C}$ (Notes 2 and 3)	±8 ±15			kV
V_{CL}	Channel Clamp Voltage Positive Transients Negative Transients	$T_A = 25^\circ\text{C}$, $I_{PP} = 1$ A, $t_P = 8/20$ μS (Note 3)		+9.96 –1.6		V
R_{DYN}	Dynamic Resistance Positive Transients Negative Transients	$T_A = 25^\circ\text{C}$, $I_{PP} = 1$ A, $t_P = 8/20$ μS Any I/O pin to Ground (Note 3)		0.96 0.5		Ω

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

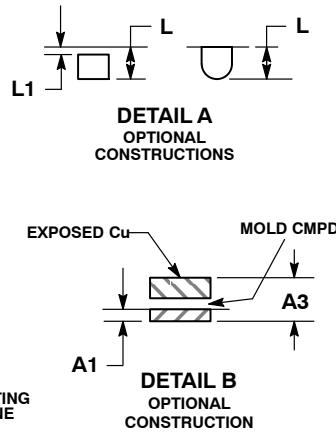
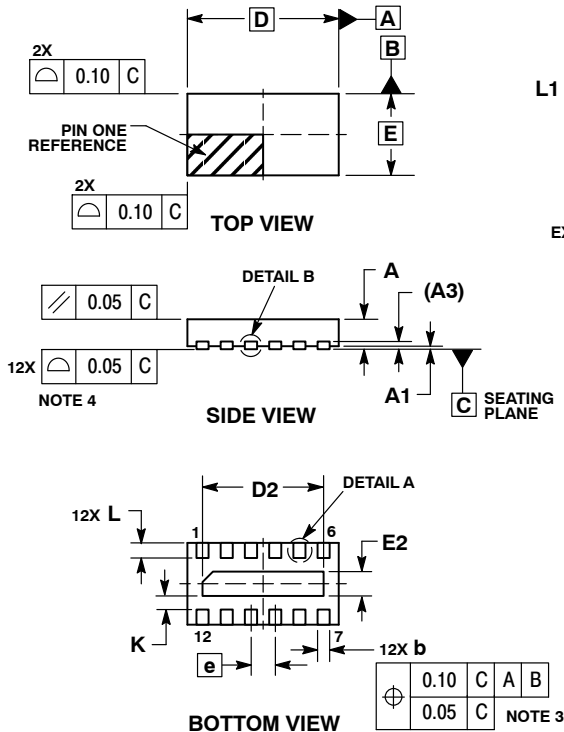
2. Standard IEC 61000–4–2 with $C_{Discharge} = 150$ pF, $R_{Discharge} = 330$ Ω, $V_P = 3.3$ V, V_N grounded.

3. These measurements performed with no external capacitor on V_P (V_P floating).

CM1263-06DE

PACKAGE DIMENSIONS

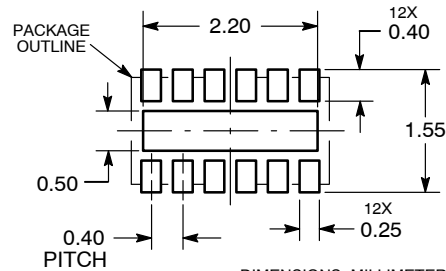
UDFN12, 2.5x1.35, 0.4P
CASE 517BD
ISSUE O



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.25 mm FROM THE TERMINAL TIP.
 4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

MILLIMETERS		
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3	0.13	REF
b	0.15	0.25
D	2.50	BSC
D2	1.90	2.10
E	1.35	BSC
E2	0.30	0.50
e	0.40	BSC
K	0.15	---
L	0.20	0.30
L1	---	0.05

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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