

# CM1263-06DE

## Low Capacitance ESD Protection for High-Speed Serial Interfaces

### Features

- 6 Channels of ESD Protection
- 1 pF Loading Capacitance per Channel Typical
- $\pm 8$  kV ESD Protection (IEC 61000-4-2, Contact Discharge)
- $\pm 15$  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



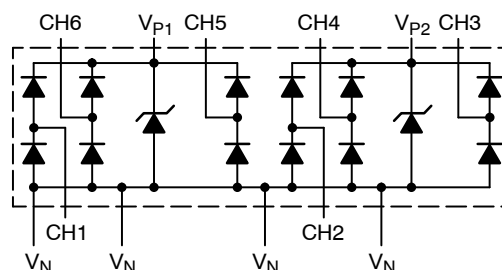
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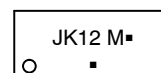


UDFN12  
DE SUFFIX  
CASE 517BD

### 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

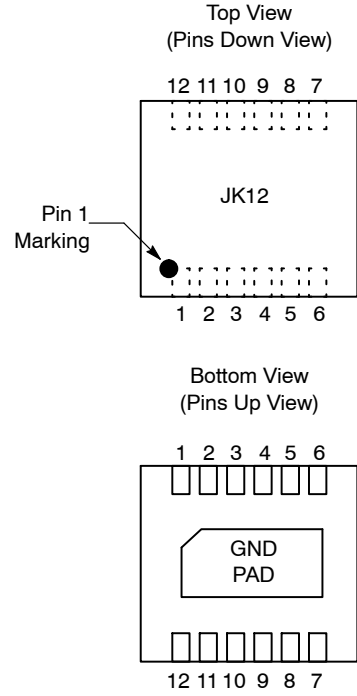
Device	Package	Shipping†
CM1263-06DE	UDFN (Pb-Free)	3000/Tape & Reel

†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

# CM1263–06DE

## SPECIFICATIONS

**Table 2. ABSOLUTE MAXIMUM RATINGS**

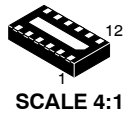
Parameter	Rating	Units
Operating Supply Voltage ( $V_P - V_N$ )	6.0	V
Operating Temperature Range	-40 to +85	°C
Storage Temperature Range	-65 to +150	°C
DC Voltage at any channel input	$(V_N - 0.5)$ to $(V_P + 0.5)$	V

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)

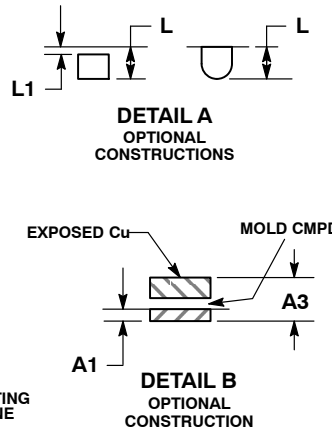
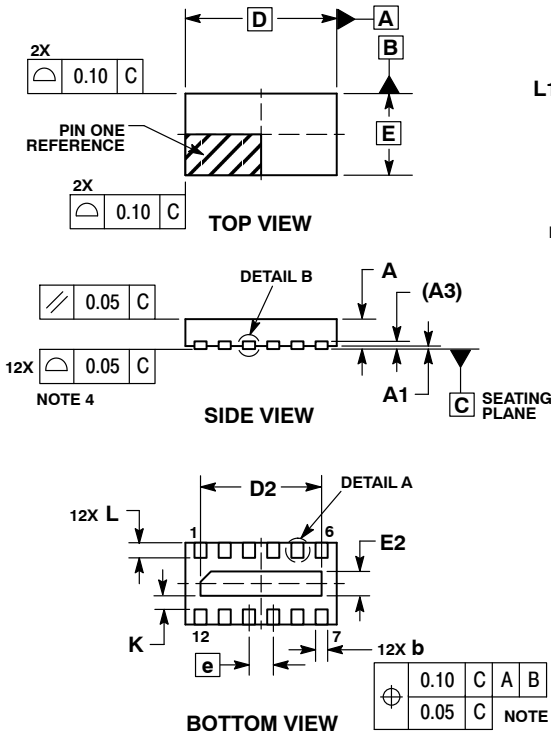
Symbol	Parameter	Conditions	Min	Typ	Max	Units
$V_P$	Operating Supply Voltage ( $V_P - V_N$ )			3.3	5.5	V
$I_P$	Operating Supply Current	$V_P = 3.3$ V, $V_N = 0$ V (per $V_P$ pin)			8.0	$\mu$ A
$V_F$	Diode Forward Voltage Top Diode Bottom Diode	$T_A = 25^\circ\text{C}$ , $I_F = 8$ mA, $V_P = 3.3$ V, $V_N = 0$ 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
$\Delta C_{IN}$	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)	$\pm 8$ $\pm 15$			kV
$V_{CL}$	Channel Clamp Voltage Positive Transients Negative Transients	$T_A = 25^\circ\text{C}$ , $I_{PP} = 1$ A, $t_P = 8/20$ $\mu$ S (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, $t_P = 8/20$ $\mu$ S Any I/O pin to Ground (Note 3)		0.96 0.5		$\Omega$

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,  $R_{Discharge} = 330$   $\Omega$ ,  $V_P = 3.3$  V,  $V_N$  grounded.
3. These measurements performed with no external capacitor on  $V_P$  ( $V_P$  floating).



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

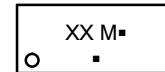
DATE 18 NOV 2009



- NOTES:
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  - CONTROLLING DIMENSION: MILLIMETERS.
  - DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.25 mm FROM THE TERMINAL TIP.
  - 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

GENERIC MARKING DIAGRAM\*



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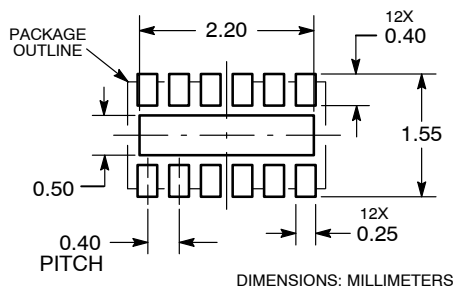
- XX = Specific Device Code  
M = Month Code  
■ = Pb-Free Package

(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking.

Pb-Free indicator, "G" or microdot "■", may or may not be present.

RECOMMENDED SOLDERING FOOTPRINT\*



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

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DESCRIPTION:	uDFN12, 2.5x1.35, 0.4p	PAGE 1 OF 1

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