CM1263-06DE

Low Capacitance ESD Protection for High-Speed Serial Interfaces

ON Semiconductor®

http://onsemi.com

UDFN12
DE SUFFIX
CASE 517BD

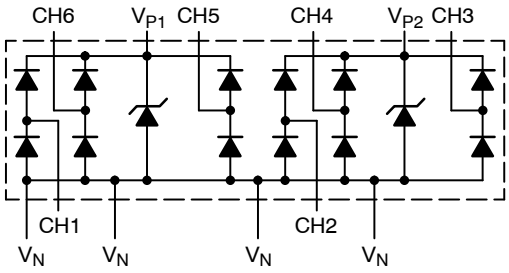
Features

- 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

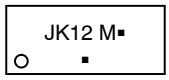
Applications

- 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

BLOCK DIAGRAM



MARKING DIAGRAM



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.

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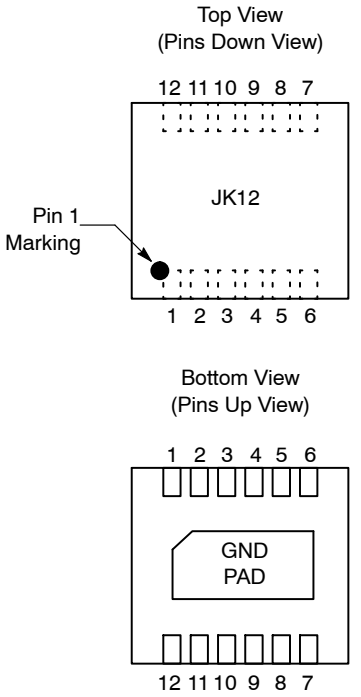
Table 1. PIN DESCRIPTIONS

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 Channels1, 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.

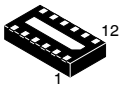
Table 3. ELECTRICAL OPERATING CHARACTERISTICS (Note 1)

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°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°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 = 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°C (Notes 2 and 3)	 ±8 ±15			kV
V_{CL}	Channel Clamp Voltage Positive Transients Negative Transients	T_A = 25°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°C, I_{PP} = 1 A, t_P = 8/20 μS Any I/O pin to Ground (Note 3)		 0.96 0.5		Ω

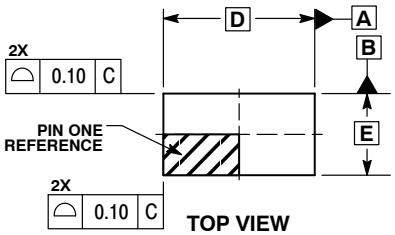
1. All parameters specified at T_A = −40°C to +85°C unless otherwise noted.
2. Standard IEC 61000−4−2 with $C_{Discharge}$ = 150 pF, $R_{Discharge}$ = 330 Ω, V_P = 3.3 V, V_N grounded.
3. These measurements performed with no external capacitor on V_P (V_P floating).

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

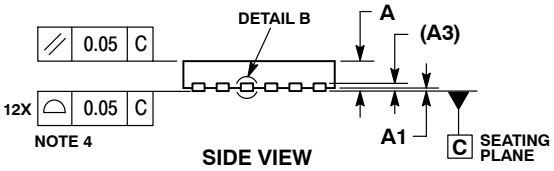
DATE 18 NOV 2009



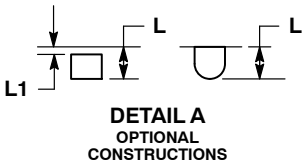
SCALE 4:1



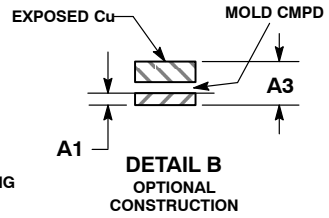
TOP VIEW



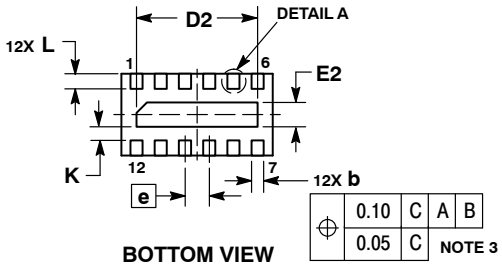
SIDE VIEW



DETAIL A
OPTIONAL CONSTRUCTIONS



DETAIL B
OPTIONAL CONSTRUCTION

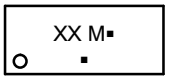


BOTTOM VIEW

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

GENERIC MARKING DIAGRAM*

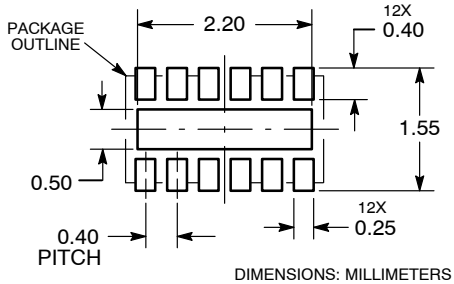


XX = Specific Device Code
M = Month Code
▪ = Pb−Free Package

(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*



DIMENSIONS: MILLIMETERS

*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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