ON Semiconductor®

Low Capacitance ESD Protection for High-Speed Serial Interfaces

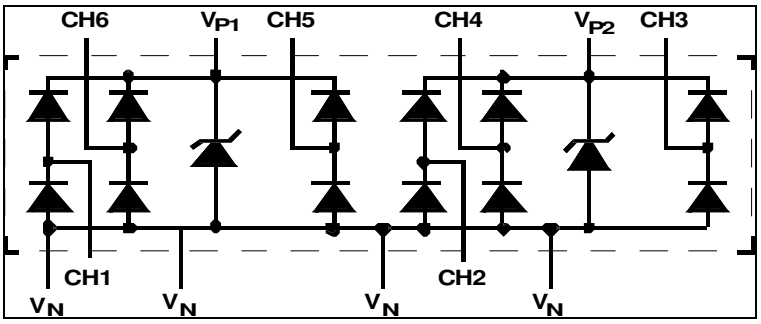
CM1263-06DE

Features

- 6 channels of ESD Protection
- 1pF loading capacitance per channel typical
- ±8kV ESD protection (IEC 61000-4-2, contact discharge)
- ±15kV ESD protection (IEC 61000-4-2, air discharge)
- RoHS-compliant uDFN-12 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



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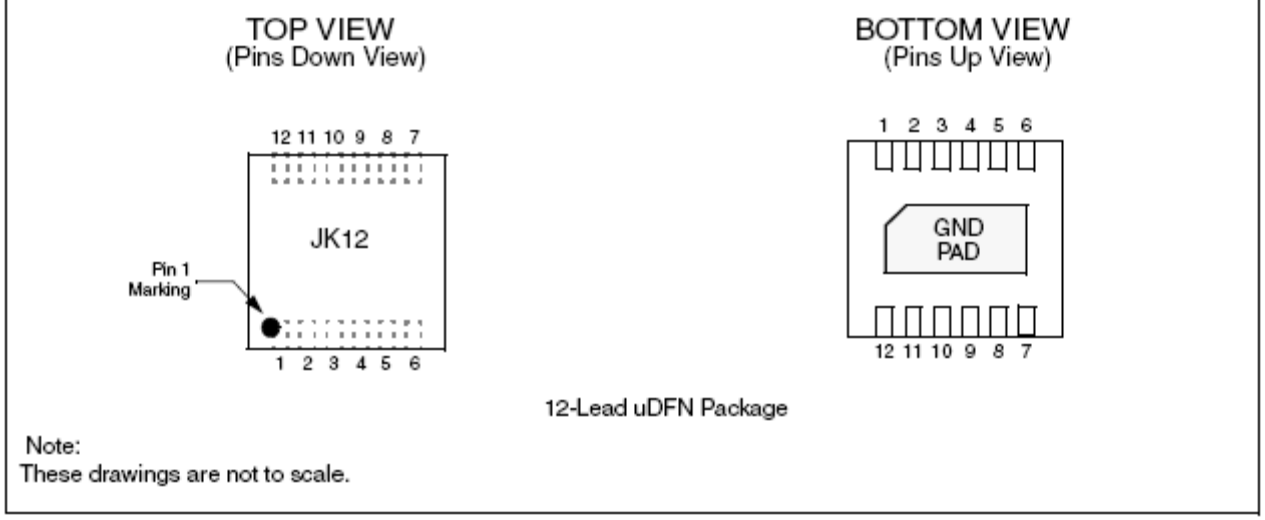
PACKAGE / PINOUT DIAGRAMS



12-Lead uDFN Package

Note:
These drawings are not to scale.

PIN DESCRIPTIONS

Pin	DESCRIPTION	Pin	DESCRIPTION
1	V_N*	7	(CH3) ESD Channel #3
2	(CH1) ESD Channel #1	8	V_{P2} for Channels 2, 3, and 4
3	V_N*	9	(CH4) ESD Channel #4
4	V_N*	10	(CH5) ESD Channel #5
5	(CH2) ESD Channel #2	11	V_{P1} for Channels1, 5, and 6
6	V_N*	12	(CH6) ESD Channel #6
		DAP*	Backside, GND Pad, V_N*

Note 1: * To achieve best ESD performance, all V_N pins must be connected.

Ordering Information

PART NUMBERING INFORMATION			
PIN	**PACKAGE**	**LEAD-FREE FINISH**	**Part Marking**
12	uDFN	CM1263-06DE	JK12

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	℃
Storage Temperature Range	-65 to +150	℃
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=3.3V, V_N=0V (per V_P pin)			8.0	µA
V_F	Diode Forward Voltage Top Diode Bottom Diode	T_A=25°C; I_F = 8mA; V_P=3.3V, V_N=0V	 0.60 0.60	 0.80 0.80	 0.95 0.95	 V V
I_{LEAK}	Channel Leakage Current	T_A=25°C; V_P=3.3V, V_N=0V (Channel 1)			250	nA
		V_P=3.3V, V_N=0V (Channels 1-6);			1000	nA
I_R	Reverse (Leakage Current)	V_P=floating; V_N=0V (per channel)			1000	nA
C_{IN}	Channel Input Capacitance	At 1 MHz, V_P=3.3V, V_N=0V, V_{IN}=0V		0.88	1.2	pF
ΔC_{IN}	Channel Input Capacitance Matching	At 1 MHz, V_P=3.3V, V_N=0V, V_{IN}=0V		0.02		pF
C_{MUTUAL}	Mutual Capacitance between signal pin and adjacent signal pin	At 1 MHz, V_P=3.3V, V_N=0V, V_{IN}=0V		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	Notes 2 and 3; T_A=25°C	 ±8 ±15			 kV kV
V_{CL}	Channel Clamp Voltage Positive Transients Negative Transients	T_A=25°C, I_{PP} = 1A, t_P = 8/20µS; Notes 3		 +9.96 −1.6		 V V
R_{DYN}	Dynamic Resistance Positive Transients Negative Transients	T_A=25°C, I_{PP} = 1A, t_P = 8/20µS Any I/O pin to Ground; Note 3		 0.96 0.5		 Ω Ω

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

Mechanical Details

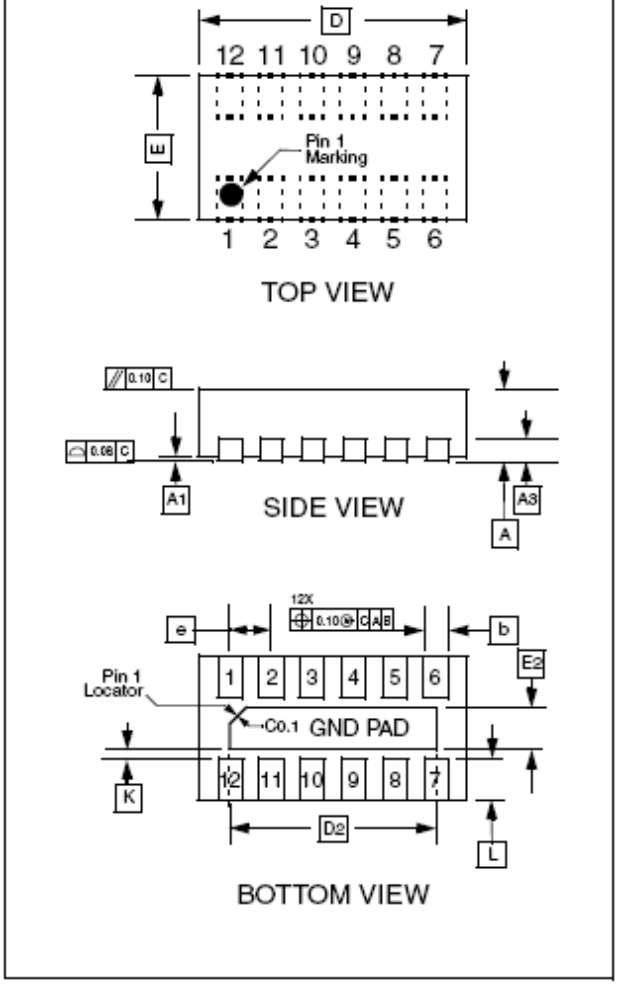
uDFN-12 Mechanical Specifications, 0.4mm

Dimensions for the 12-lead, 0.4mm pitch uDFN pack- age are presented below.

PACKAGE DIMENSIONS						
Package	uDFN					
JEDEC No.	MO-229C*					
Leads	12					
Dim.	**Millimeters**			**Inches**		
	Min	**Nom**	**Max**	**Min**	**Nom**	**Max**
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	0.127 REF			0.005 REF		
b	0.15	0.20	0.25	0.006	0.008	0.010
D	2.40	2.50	2.60	0.094	0.098	0.102
D2	1.90	2.00	2.10	0.075	0.079	0.083
E	1.25	1.35	1.45	0.049	0.053	0.057
E2	0.30	0.40	0.50	0.012	0.016	0.020
e	0.40 BSC			0.016 BSC		
K	0.22 REF			0.0087 REF		
L	0.15	0.25	0.35	0.006	0.010	0.014
# per tape and reel	3000 pieces					
Controlling dimension: millimeters						

*This package is compliant with JEDEC standard MO-229C with the exception of the D, D2, E, E2, K and L dimensions as called out in the table above.

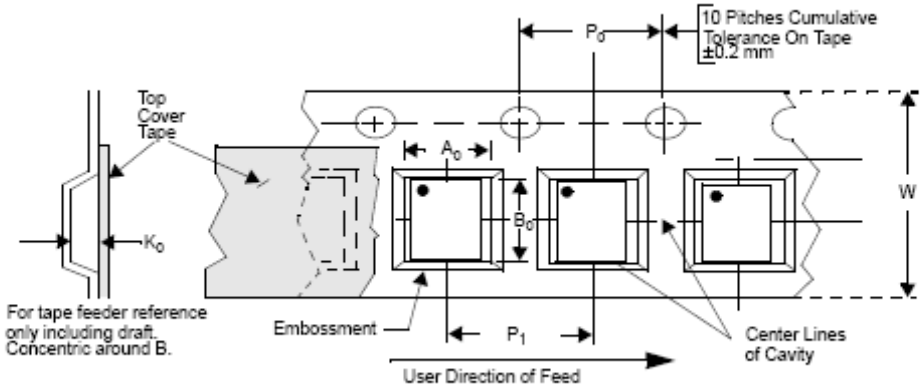
Mechanical Package Diagrams



Dimensions for 12-Lead, 0.4mm Pitch uDFN Package

Tape and Reel Specifications

PART NUMBER	PACKAGE SIZE (mm)	POCKET SIZE (mm) B_0 X A_0 X K_0	TAPE WIDTH W	REEL DIAMETER	QTY PER REEL	P_0	P_1
CM1263-06DE	2.50 X 1.35 X 0.50	2.75 X 1.60 X 0.60	8mm	178mm (7")	3000	4mm	4mm



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