

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



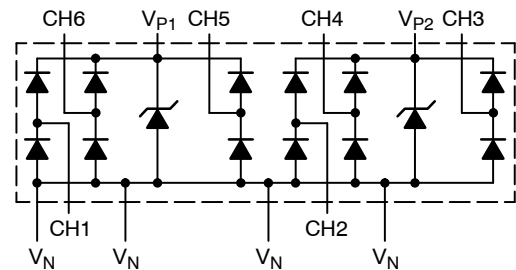
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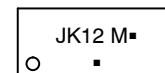


UDFN12
DE SUFFIX
CASE 517BD

BLOCK DIAGRAM



MARKING DIAGRAM



1

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

ORDERING INFORMATION

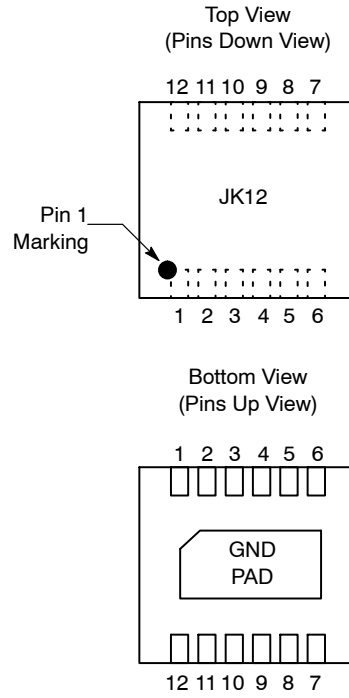
| Device | Package | Shipping† |
|-------------|-------------------|------------------|
| CM1263-06DE | UDFN (Pb-Free) | 3000/Tape & Reel |

†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 | μ 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 |
| 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, $t_p = 8/20$ μ 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, $t_p = 8/20$ μ S Any I/O pin to Ground (Note 3) | | 0.96 0.5 | | Ω |

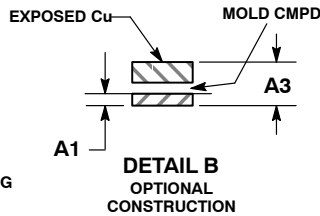
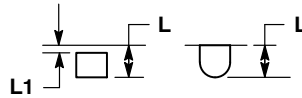
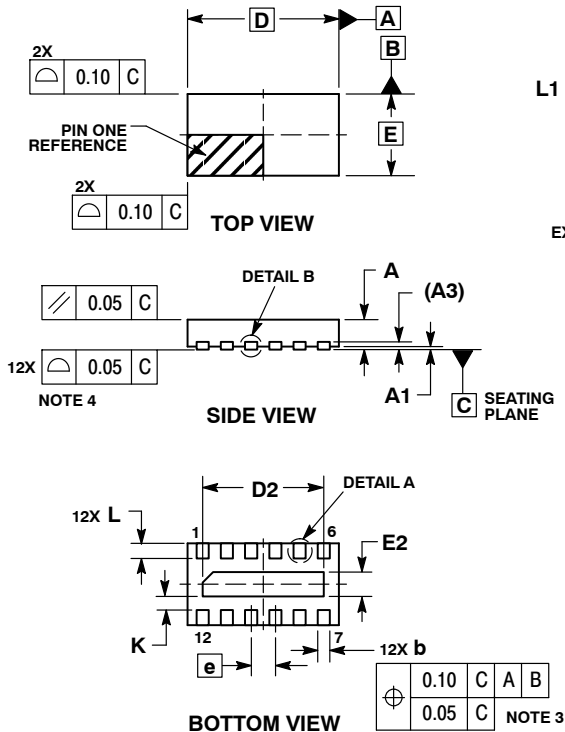
1. All parameters specified at $T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$ unless otherwise noted.
2. Standard IEC 61000-4-2 with $C_{Discharge} = 150$ pF, $R_{Discharge} = 330$ Ω , $V_P = 3.3$ V, V_N grounded.
3. These measurements performed with no external capacitor on V_P (V_P floating).

CM1263-06DE

PACKAGE DIMENSIONS

UDFN12, 2.5x1.35, 0.4P
CASE 517BD-01
ISSUE O

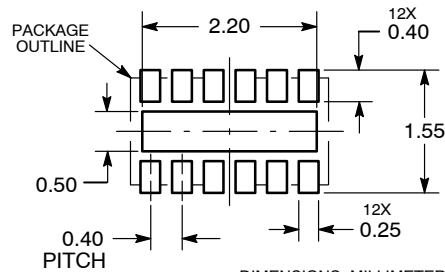
SCALE 4:1



- 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.

| DIM | MILLIMETERS | |
|-----|-------------|------|
| | 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*



*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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