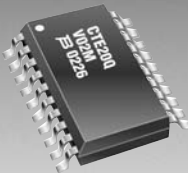


*RoHS COMPLIANT



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Features

- Lead free
- RoHS compliant*
- 9 RC termination circuits to IEEE 1284 standard
- Stable thin-film-on-silicon technology
- Ultra-miniature packages to JEDEC standards

Applications

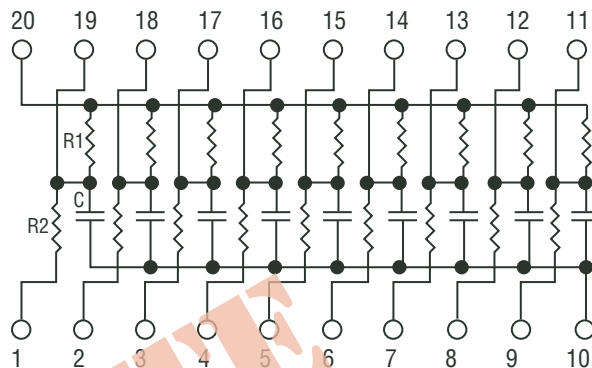
- Bidirectional parallel port communications
- Specially designed for PC/printer interface
- Ideal for space-constrained applications

Thin Film on Silicon 2CTE IEEE 1284 Terminator

General Information

The IEEE 1284 Terminator is used to provide filtering and pull-up termination on bidirectional, high-speed parallel ports connecting computer to printer. These Silicon-based, Tantalum-Nitride resistors and capacitors feature excellent stability, temperature coefficients and tracking performance. This product series conforms to JEDEC standards.

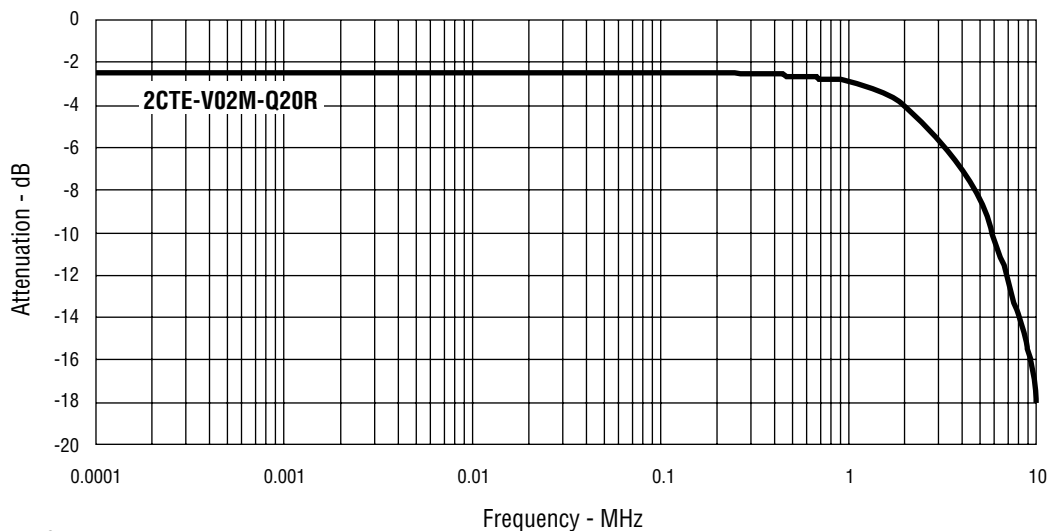
Package Schematic



Electrical & Environmental Characteristics

| Electrical Characteristics | Symbol | Minimum | Nominal | Maximum | Unit |
|--------------------------------------|-----------|---------|------------|---------|--------------------|
| Resistance Range | R | 10 | | 4.7K | Ω |
| Resistor Tolerance | | | $\pm 10\%$ | | Ω |
| Power Rating per Resistor @ 70 °C | | | | 0.1 | Watt |
| Capacitor Range | C | 33 | | 220 | pF |
| Capacitor Tolerance | | | $\pm 20\%$ | | pF |
| Capacitor Breakdown Voltage | | 25 | 35 | | V |
| Operating Voltage | | | | 50 | V |
| Environmental Characteristics | | | | | |
| ESD | | 2 K | | | V |
| Operating Temperature | T_J | -55 | | +125 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -65 | | +150 | $^{\circ}\text{C}$ |
| Power Rating per Package @ 70 °C | | | | 1.0 | Watt |

Filter Response



*RoHS Directive 2002/95/EC Jan 27 2003 including Annex

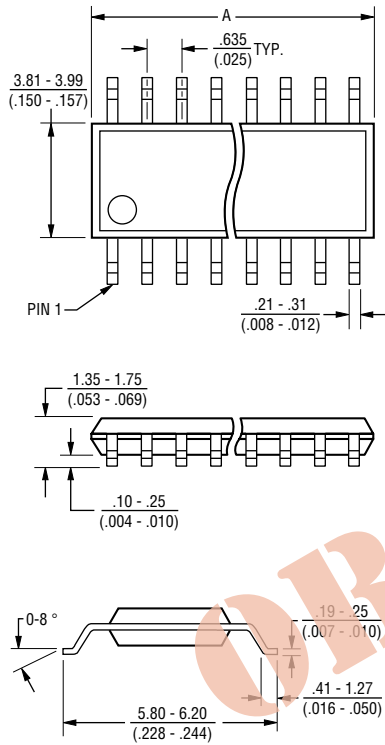
Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

Thin Film on Silicon 2CTE IEEE 1284 Terminator

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Mechanical Characteristics

QSOP Package Dimensions

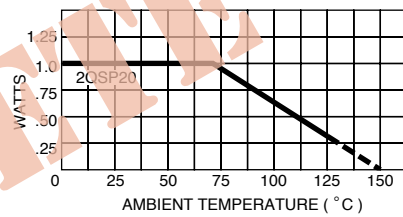


| Model | A |
|--------|---------------------------|
| 2QSP20 | 8.56 - 8.74 (.337 - .344) |

Governing dimensions are in mm. Dimensions in parentheses are in inches and are approximate.

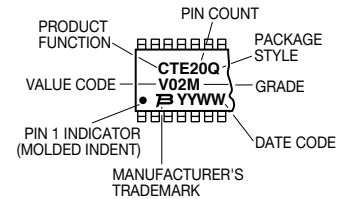
JEDEC Reference Number MO-137.

QSOP Package Power Temperature Derating Curve



Typical Part Marking

Represents total content. Layout may vary.



Standard RC Values

| Value Code | R1 Value (ohms) | R2 Value (ohms) | C1 Value (pF) | Cap. BV (typ.) | Part Number (Tape & Reel) | Part Number (Tubes) |
|------------|-----------------|-----------------|---------------|----------------|---------------------------|---------------------|
| V01 | 1 K | 33 | 180 | 25 | 2CTE-V01M-Q20R | 2CTE-V01M-Q20T |
| V02 | 2.2 K | 33 | 220 | 25 | 2CTE-V02M-Q20R | 2CTE-V02M-Q20T |
| V03 | 4.7 K | 10 | 180 | 25 | 2CTE-V03M-Q20R | 2CTE-V03M-Q20T |
| V04 | 4.7 K | 33 | 180 | 25 | 2CTE-V04M-Q20R | 2CTE-V04M-Q20T |
| V05 | 4.7 K | 270 | 33 | 25 | 2CTE-V05M-Q20R | 2CTE-V05M-Q20T |
| V08 | 1 K | 33 | 47 | 25 | 2CTE-V08M-Q20R | 2CTE-V08M-Q20T |
| V09 | 2.2 K | 33 | 47 | 25 | 2CTE-V09M-Q20R | 2CTE-V09M-Q20T |

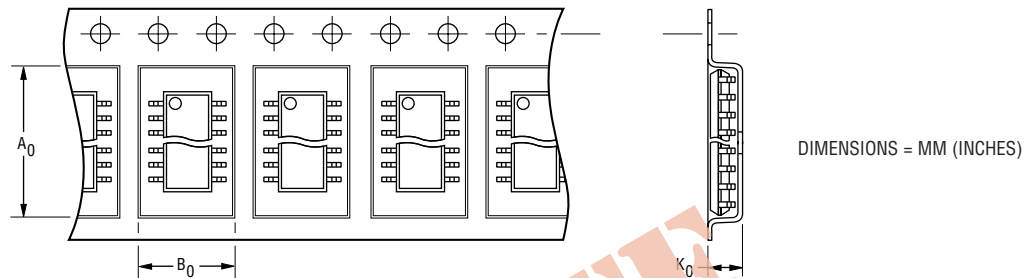
Specifications are subject to change without notice. Customers should verify actual device performance in their specific applications.

Thin Film on Silicon 2CTE IEEE 1284 Terminator

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Dispensing

For large quantities, the product will be dispensed in Tape and Reel (see diagram below).



| Package | A ₀ | B ₀ | K ₀ | Width | Pitch | No. of Pieces per 13 reel | No. of Pieces per tube |
|----------------|----------------|----------------|----------------|------------|-----------|---------------------------|------------------------|
| QSOP 20 Pin | 6.5 (0.256) | 9.0 (0.354) | 2.1 (0.083) | 16 (0.630) | 8 (0.315) | 3,500 | 56 |

How To Order

2 CTE-V02 M-Q 20 R LF

Product Class _____
Thin-Film-on-Silicon

Product Function _____
CTE = IEEE 1284 Terminator

Value Code _____
(Refer to Standard RC Value Table)

Standard Grade _____
R Tol. C Tol.
M = ±10 % ±20 %

Standard Package Style _____
Q = QSOP

Pin Count _____
Q = 20

Dispensing _____
R = Reel
T = Tube

Terminations _____
LF = 100 % Sn (lead free)



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