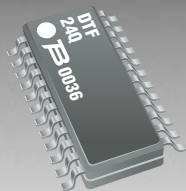


\*RoHS COMPLIANT



**BOURNS®**

## Features

- Lead free
- RoHS compliant\*
- Combined EPP/ECP parallel port terminator and filter with an integrated diode array
- Complete interface solution - two packages replace 61 discrete elements
- Nine termination channels per package
- Supports IEC 61000-4-2 ESD specification requirements\*

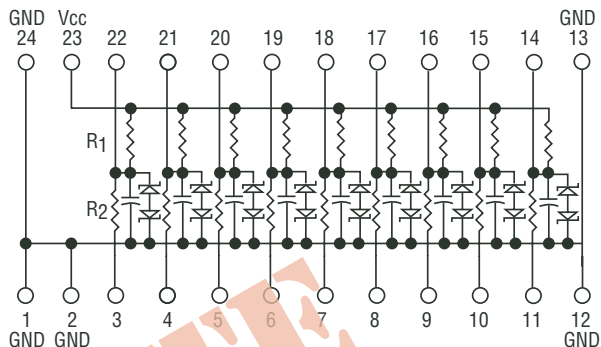
## Thin Film On Silicon 2DTF 1284 Terminator/Filter with Integrated ESD Array

### General Information

The Model 2DTF Series IEEE 1284 Terminator/Filter is a multi-functional single device interface for IEEE EPP/ECP designs. In addition to termination and filtering, the Model 2DTF offers  $\pm 8$  KV contact discharge and  $\pm 15$  KV air discharge (per Human Body model) of ESD protection and is specifically designed to meet the requirements of ESD system specification IEC 61000-4-2.

This highly integrated product is well-suited for use in space-constrained applications such as PC notebooks and motherboards, NT servers, engineering workstations, and portable battery powered devices. It is also useful in peripheral products which are designed to communicate through the EPP/ECP parallel port such as inkjet and laser printers, portable/removable drives, scanners, digital cameras, tape back-ups, LANs and other communication interfaces.

### Package Schematic



### Electrical & Environmental Characteristics

Electrical Characteristics	Symbol	Minimum	Nominal	Maximum	Unit
Resistor Tolerance				$\pm 10$	%
Resistor Power Dissipation @ 70 °C				100	mW
Capacitor Tolerance				$\pm 20$	%
Capacitor Breakdown Voltage		25	35		V
Maximum Operating Voltage	$V_{CC}$			6.0	V
Forward Voltage:					
@ $I_f = 1$ mA	$V_f$			0.9	V
@ $I_f = 10$ mA	$V_f$			1.5	V
Reverse Breakdown Voltage:					
@ $I_R = 10 \mu A$ @ 70 °C	$R_V$	$6 \pm 0.5$			V
@ $I_R = 1 \mu A$ @ 25 °C	$R_V$	$6 \pm 0.5$	0.65	0.85	V
Max. Leakage Current @ Max. $V_{CC}$ @ 25 °C				1	$\mu A$
Signal Clamp Voltages:					
Positive Clamp				6	V
Negative Clamp				-6	V
<b>Environmental Characteristics</b>					
Operating Temperature	$T_J$	-55		+125	°C
Storage Temperature	$T_{stg}$	-65		+150	°C
Diode Power Rating				20	mW/diode
ESD Performance Withstand*:					
Contact Discharge		$\pm 8$	$\pm 9$		kV
Air Discharge		$\pm 15$	$\pm 16$		kV

\* Note: IEC 61000-4-2 ESD test performance is measured at the systems level and system designs, enclosure shielding and other conventional ESD control measures usually influence the results of these tests. Testing on the component level serves as an indicator that the system passes a specific compliance step, but does not ensure that the system passes at that level. The Model 2DTF device, therefore, can support successful implementation of the IEC 61000-4-2 system level ESD standard.

\*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.

## Applications

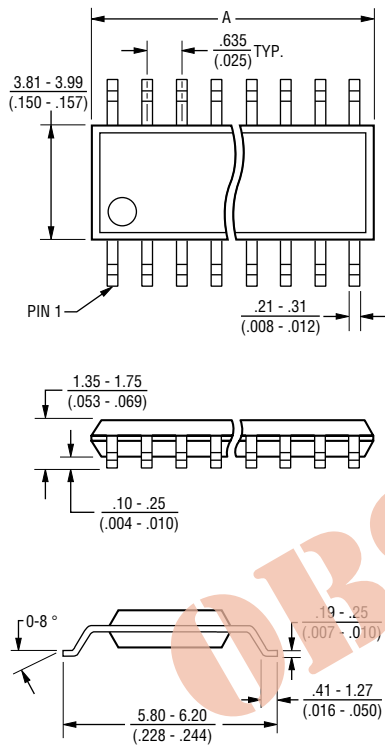
- Bidirectional EPP/ECP parallel port communications
- Personal computer peripherals with 1284 EPP/ECP interface
- Ideal for space-constrained designs

Thin Film On Silicon 2DTF 1284 Terminator/Filter with Integrated ESD Array

**BOURNS®**

### Mechanical Characteristics

#### QSOP Package Dimensions

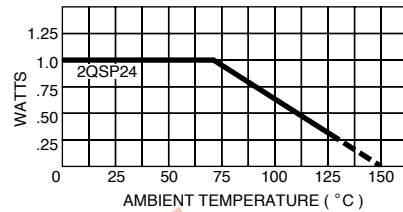


Model	A
2QSP24	8.56 - 8.74 (.337 - .344)

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

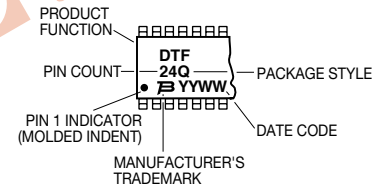
JEDEC Reference Number MO-137.

#### QSOP Package Power Temperature Derating Curve

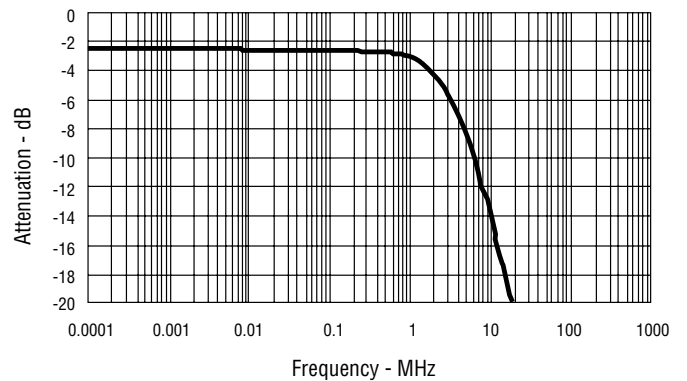


#### Typical Part Marking

Represents total content. Layout may vary.



#### Filter Response



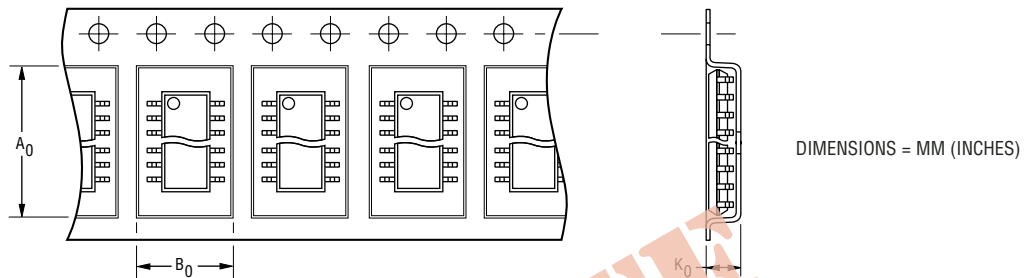
#### Standard RC Values

Value Code	R1 Value (ohms)	R2 Value (ohms)	C1 Value (pF)	Part Number (Tape & Reel)	Part Number (Tubes)
V01	1K	33	180	2DTF-V01M-Q24R	2DTF-V01M-Q24T

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

**Dispensing**

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



Package	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	Width	Pitch	No. of Pieces per 13 reel	No. of Pieces per tube
QSOP 24 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 DTF-V01 M-Q 24 R LF**

**Product Class** \_\_\_\_\_  
Thin-Film-on-Silicon

**Product Function** \_\_\_\_\_  
DTF = IEEE 1284 Terminator  
w/Integrated Diodes

**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 = 24

**Dispensing** \_\_\_\_\_  
R = Reel  
T = Tube

**Terminations** \_\_\_\_\_  
LF = 100 % Sn (lead free)



*Reliable Electronic Solutions*

**Asia-Pacific:**

Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

**Europe:**

Tel: +41-41 768 5555 • Fax: +41-41 768 5510

**The Americas:**

Tel: +1-951 781-5500 • Fax: +1-951 781-5700

[www.bourns.com](http://www.bourns.com)