Thin Film Differential Terminator Resistor Network

Features

- Thin film on silicon
- Tolerance ±2%
- Wide body surface mount SOIC and DIP configuration
- Drop-in replacement to thick film networks
- Also available in custom schematic and configuration

Applications

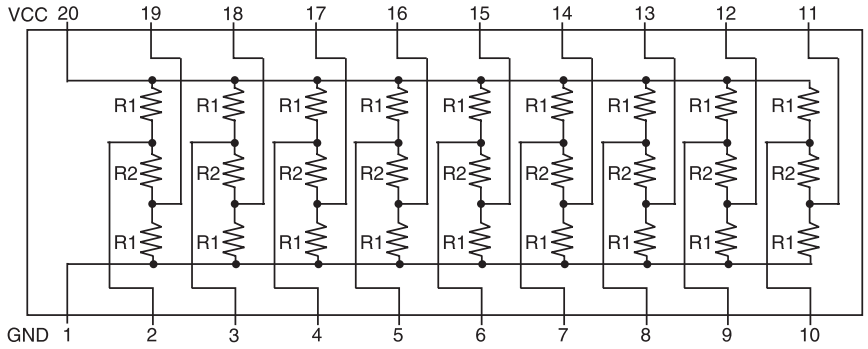
- Differential SCSI Termination
- SCSI Host Adapter Cards and Other SCSI Devices

Product Description

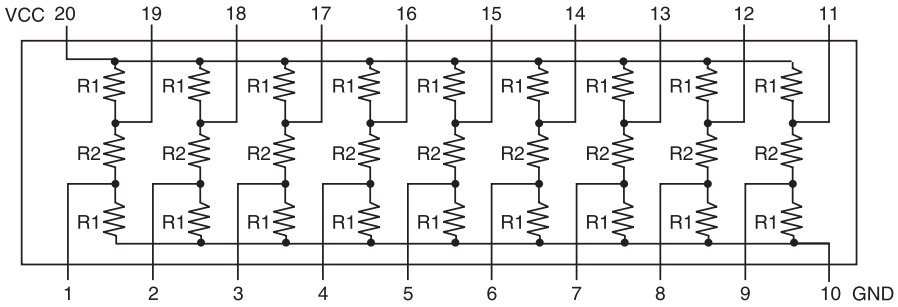
The PRN103/153/125/155 is a high performance Integrated Passive Device (IPD) designed to eliminate transmission line effects on high-speed data lines on a special bus called SCSI (Small Computer Systems Interface). SCSI is a bus interface covered by an ANSI standard that allows for an input/output bus to connect small computers with a variety of peripheral devices.

Proper resistor termination requires a resistor whose value closely matches the characteristic impedance of the transmission line. Thin film networks offer significant advantages over conventional thick film processes in terms of tighter absolute and ratio tolerances, greater stability, lower noise, and Temperature Coefficient of Resistance (TCR). Furthermore, they offer superior high frequency performance with minimal parasitic inductance and capacitance. Integrated thin film networks also offer the benefits of board space savings, reduced assembly costs, and increased reliability with fewer components.

SCHEMATIC CONFIGURATIONS



Schematic A — PRN103/153



Schematic B — PRN125/155

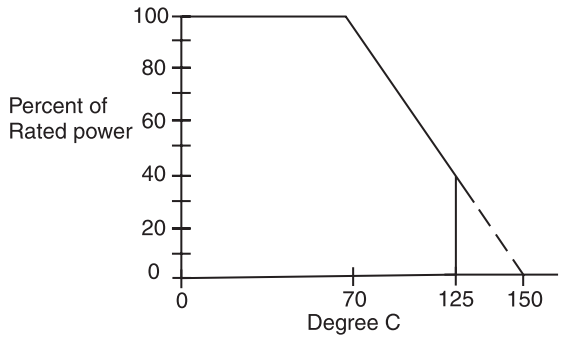
C1160600

ELECTRICAL	
Resistance Range	R_1 = 170 to 660Ω
Resistance Range	R_2 = 80 to 300Ω
Operating Temperature Range	−55°C to 150°C
VCR	5ppm/V
Max. Power Rating For Each Resistor	100mW
Min. Insulation Resistance	10,000MΩ
Noise, Max. (MIL-STD-202, Method 308)	−25dB

TOLERANCES	
Absolute Resistance Tolerance, at 25°C (%)	±1.0 ±2.0
Temperature Coefficient of Resistance, ppm/°C	±100
Typical Tracking TCR, ppm/°C	±10

MECHANICAL	
Lead Plating	Tin-Lead
Lead Material	Copper Alloy
Lead Coplanarity	0.004" (0.102mm)
Substrate Material	Silicon
Resistor Material	Tantalum Nitride
Body Material	Molded Epoxy
Flammability	UL94V-0

POWER DERATING CURVE



PERFORMANCE DATA (DELTA R%)			
Test per Mil-R-83401	**Char H Limits**	**CAMD Max**	**CAMD Typ**
Thermal Shock	.25	.1	.02
Power Conditioning	.5	.1	.03
Low Temperature Operating	.1	.1	.03
Short Time Overload	.1	.1	.02
Terminal Strength	.25	.1	.02
Resistance to Soldering Hear	.1	.1	.02
Moisture Resistance	.4	.1	.03
Shock	.25	.1	.02
Vibration	.25	.1	.02
Life	.5	.1	.05
High Temperature Exposure	.2	.1	.05
Low Temperature Storage	.1	.05	.03
25°C Power Rating	.5	.1	.05

STANDARD VALUES		
R1(Ω)	R2(Ω)	R Code
330	150	331/151

STANDARD PART ORDERING INFORMATION					
Part Type	Schematic	Package		Ordering Part Number	
		Pins	Style	Tape & Reel	Part Marking
PRN103	A	20	SOIC	PRN10320331/151G	PRN10320331/151G
PRN125	B	20	SOIC	PRN12520331/151G	PRN12520331/151G
PRN153	A	20	DIP	PRN15320331/151G	PRN15320331/151G
PRN155	B	20	DIP	PRN15520331/151G	PRN15520331/151G

NON-STANDARD PART ORDERING INFORMATION				
Part Series	Pin Count	Value Code		Tolerance
		R1 (XXX)	R2 (XXX)	
Example (PRN103)	*(20)*	*(331)*	*(151)*	*(G)*
PRN103-SOIC	20	First 2 digits are significant value. Third digit represents number of zeros to follow.		F = ±1% G = ±2%
PRN153-DIP	20			
PRN125-SOIC	20			
PRN155-DIP	20			