HIGH PERFORMANCE RAMBUS™ TERMINATION NETWORK FOR RIMM™ CONNECTOR

Features

- 2 chip solution for all Rambus™ load terminations, in 20-pin QSOP narrow package
- 14 Terminations in a single package
- 1% absolute tolerance 28 ohms terminations across temperature range
- Center ground pin placement reduces ground bounce and eases board layout
- Very low cross-talk
- Saves board space and reduces assembly cost

Applications

- Rambus™ Memory System

Product Description

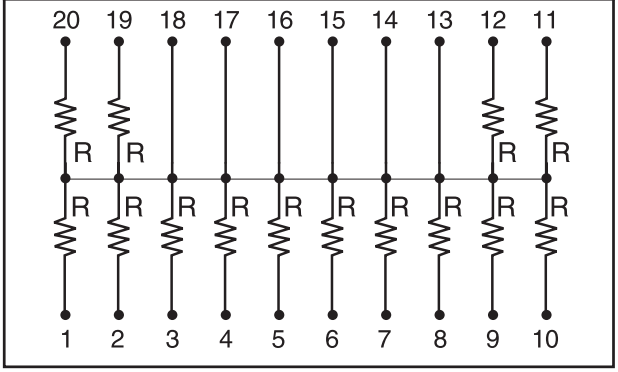
The Direct Rambus™ memory interface transfers data at both edges of a 400MHz clock resulting in an 800MHz transfer rate. The Rambus™ channel uses a memory controller on one end of the bus, terminations at the other end, and the RIMM™ modules in between. The Rambus™ channel contains control signals and data bus lines that must be terminated in order to prevent any reflections. California Micro Devices' PAC™ RAMBUS-1 integrates fourteen 28-ohm resistors specified at 1% absolute tolerance across the commercial temperature range.

This termination network provides high performance, high reliability, and low cost through manufacturing efficiency. The termination resistor elements are fabricated using state-of-the-art thin film manufacturing. This integrated solution is silicon-based and has the same reliability characteristics as any of today's microprocessor products. The thin film resistors have very high stability over temperature, over applied voltage, and over life. In addition, the QSOP industry standard packaging is easy to handle in manufacturing and yields a high reliability similar to other semiconductor components.

STANDARD SPECIFICATIONS	
Resistor (R)	28 Ohms
Absolute Tolerance (R) (0° to 70°C)	±1%
TCR	±150ppm
Operating Temperature Range	0°C to 70°C
Power Rating/Resistor	40mW
Max Package Power Rating (70°C)	1.00W
Cross Talk	TBD

R (Ω)	Code
28	280

SCHEMATIC

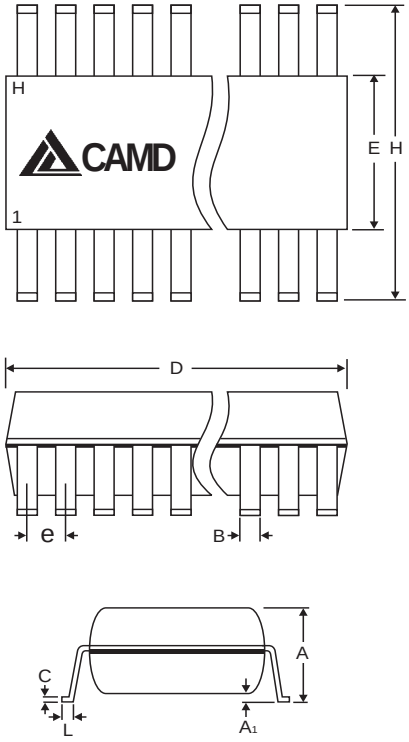


The following lines must be terminated:

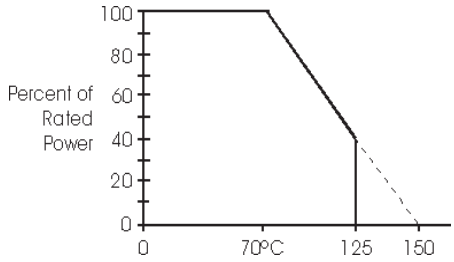
- DQA[8:0]: Data bus A,
- DQB[8:0]: Data bus B,
- CFM, CFMN: Clock From Master (positive and negative polarity),
- ROW[2:0]: Row bus,
- COL[4:0]: Column bus.

STANDARD PART ORDERING INFORMATION				
Package		Ordering Part Number		
Pins	Style	Tubes	Tape & Reel	Part Marking
20	QSOP Narrow	PACRAMBUS-1/T	PACRAMBUS-1/R	PACRAMBUS-1

QSOP - TOP VIEW



POWER DERATING CURVE



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

PACKAGE DIMENSIONS, POWER DISSIPATION & iNFORMATION				
Package	QSOP			
Pins #	20			
	mm		inches	
	min	max	min	max
A	1.35	1.75	0.053	0.069
A_1	0.10	0.25	0.004	0.010
B	0.20	0.30	0.008	0.012
C	0.18	0.25	0.007	0.010
D	8.56	8.73	0.337	0.344
E	3.81	3.98	0.150	0.157
e	0.64 BSC		0.025 BSC	
H	5.79	6.19	0.228	0.244
L	0.40	1.27	0.016	0.050
P_D @ 70°C	1.00W			
#/tube	56 pcs			
#/tape & reel	2,500 pcs			