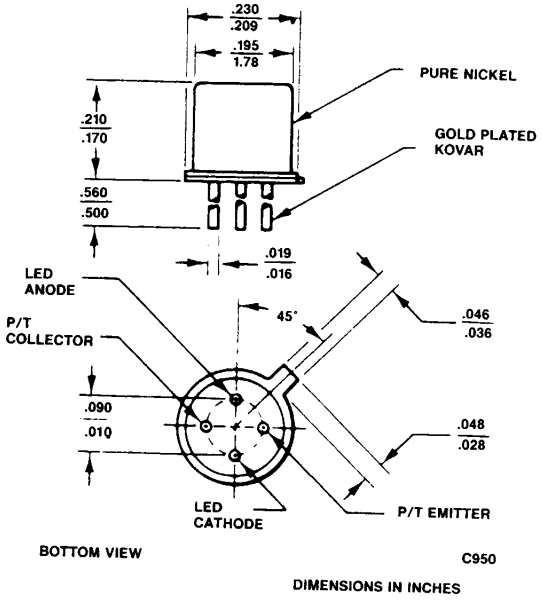
FAIRCHILD
SEMICONDUCTOR™

RELIABILITY CONDITIONED HERMETIC PHOTOTRANSISTOR OPTOCOUPLER

MCT4R

PACKAGE DIMENSIONS



DIMENSIONS IN INCHES

DESCRIPTION

The MCT4R is a standard four-lead, TO-18 package containing a GaAs infrared emitting diode optically coupled to a silicon planar phototransistor.

FEATURES

- Hermetic package
- High current transfer ratio; typically 35%
- High isolation resistance, 10^{11} ohms at 500 volts
- High voltage isolation emitter to detector
- Screened to MIL-STD-883 Class B

APPLICATIONS

The MCT4R is designed and manufactured to conform to the requirements of military systems. Reliability testing has proven the product capable of conforming to the screening and quality conformance requirements of MIL-STD-883C Class B devices.

SCREEN—100%		
Characteristic	**Method**	
Internal Visual	2010	— Characteristics applicable to device
Stabilization Bake	1008	— 150°C. for 48 hours
Temperature Cycle	1010	— 10 cycles; −55°C., 25°C., 150°., 25°C.
Centrifuge	2001	— Test Condition E
Hermeticity	1014	— Fine and Gross
Critical Electrical	—	Data Sheet
Burn In	1015	— 160 hours @ 125°C
Final Electrical	—	Data Sheet
Group A Sample Inspection	5005	Table I Subgroups
External Visual	2009	

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LOT QUALIFICATION TESTS

CHARACTERISTIC	METHOD	LTPD
Subgroup I		
Visual Mechanical		
Marking Permanency	2008	15%
Physical Dimensions		
Subgroup II		
Solderability	2003	15%
Subgroup III		
Thermal Shock	1011 — 15 cycles; 150°C. to −65°C.	
Temperature Cycle	1010 — 10 cycles; −55°C., 25°C., 150°C., 25°C.	15%
Moisture Resistance	1004	
Critical Electrical	— Data Sheet	
Subgroup IV		
Mechanical Shock	2002 — Condition B	15%
Vibration Fatigue	2005 — Condition A	
Vibration Variable Frequency	2007 — Condition A	
Constant Acceleration	2001 — Condition E	
Critical Electrical	— Data Sheets	
Subgroup V		
Lead Fatigue	2004 — Condition B_2	15%
Hermeticity	1014 — Fine Condition A	
	Gross Condition C	
Subgroup VI		
Salt Atmosphere	1009 — Condition A	15%

LIFE TESTING 7% LTPD

CHARACTERISTIC	METHOD	LTPD
Subgroup VII		
High Temperature Storage	1008 — 150°C. for 1000 hours	7%
Critical Electrical	— Data Sheet	
Subgroup VIII		
Operating Life	1005 — Condition B	7%
Critical Electrical	— Data Sheets	
Subgroup IX		
Steady State Reverse Bias	1015 — Condition A; 72 hours at 150°C.	7%
Subgroup X		
Bond Strength	2001 — Condition C; 10 devices only	

Reference: MIL-STD-883C Test Methods and Procedures for Microelectronics.

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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