T-41-83

IS–1 ONE CHANNEL
ISD–1 TWO CHANNEL
ISQ–1 FOUR CHANNEL

OPTICALLY COUPLED ISOLATORS

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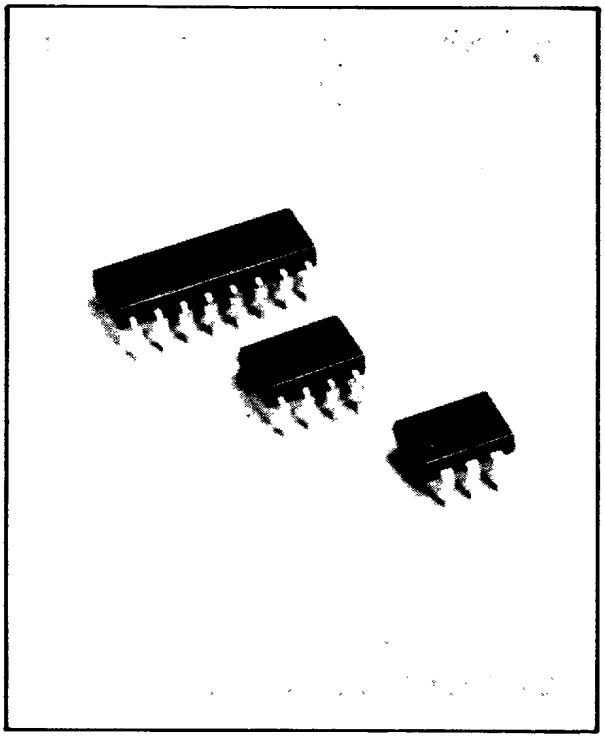
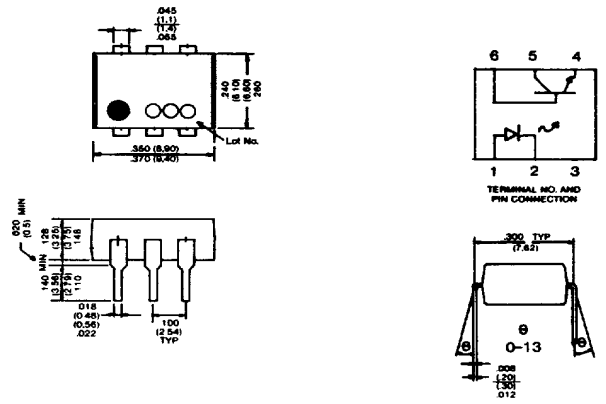
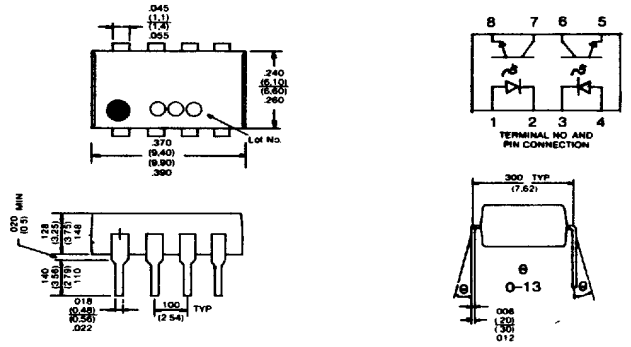


Package Dimensions in Inches (mm)

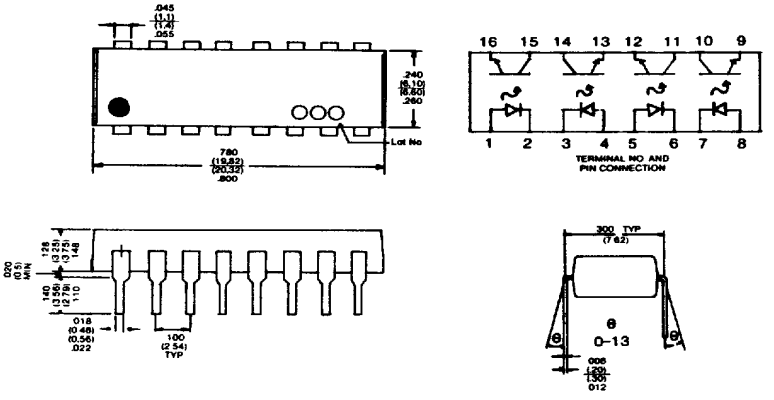
SINGLE CHANNEL (IS–1)



TWO CHANNEL (ISD–1)



FOUR CHANNEL (ISQ–1)



FEATURES

- 2500 Volt Isolation
- High current transfer ratio
- Low cost dual-in-line package
- Single, dual, quad configuration

DESCRIPTION

The IS–1, ISD–1, ISQ–1 are optically coupled isolators. Each channel consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor mounted in standard plastic dual-in-line packages. The IS–1 is a single channel isolator. The ISD–1 offers two channels per unit and the ISQ–1 offers four channels per unit.

All electrical parameters are 100% tested. Specifications are guaranteed to a cumulative .65% AQL.

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ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise noted)

Storage Temperature ..... −55°C to +150°C
Operating Temperature ..... −55°C to +100°C
Lead Soldering Temperature (1/16 inch (1.6 mm) from case for 10 seconds) ..... 260°C
Input-to-Output Isolation Voltage (see note 1) ..... ±2500 VDC

Input Diode

Forward DC Current ..... 60 mA
Reverse DC Voltage ..... 3 V
Peak Forward Current (PW. ≤ 100 μs, duty ratio 0.001) ..... 1 A
Power Dissipation (derate linearly 1.33 mW/°C above 25°C) ..... 100 mW

Output Transistor

Collector-emitter voltage ..... 30 V
Emitter-collector voltage ..... 7 V
Power Dissipation (derate linearly 2.00 mW/°C 25°C) ..... 150 mW

Package

Total Power Dissipation

IS–1 (derate linearly 2.67 mW/°C above 25°C) ..... 200 mW
ISD–1 (derate linearly 5.33 mW/°C above 25°C) ..... 400 mW
ISQ–1 (derate linearly 6.67 mW/°C above 25°C) ..... 500 mW

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

	Parameter	Min.	Typ	Max	Units	Test Condition
Input	Forward Voltage (V_F)			1.5	Volt	I_F = 60 mA
	Reverse Current (I_R)			10	μA	V_R = 3 V
Output	Collector-emitter Voltage (BV_{CEO})	30	50		Volt	I_C = 1 mA
	Emitter-collector Voltage (BV_{ECO})	7	8		Volt	I_E = 0.1 mA
	Collector-emitter Dark Current (I_{CEO})			50	nA	V_{CE} = 10 V
Coupled	DC Current Transfer Ratio (CTR)	20	50		%	I_F = 10 mA, V_{CE} = 10 V
	Collector-emitter Saturation Voltage V_{CE} (Sat)		0.2	0.5	Volt	I_F = 16 mA, I_C = 1.6 mA
	Floating Capacitance (C_F)		0.6	1.0	pf	V = 0 f = 1 mhz
	Input-to-Output Isolation Resistance Riso	$5x10^{11}$			ohm	V_{IO} = 500 V (see note 1)

Note 1: Measured with input leads shorted together and output leads shorted together