

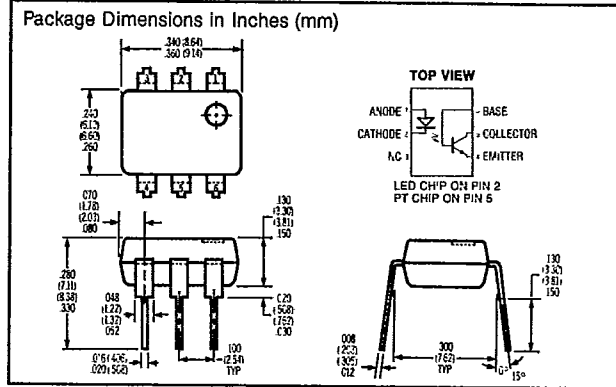
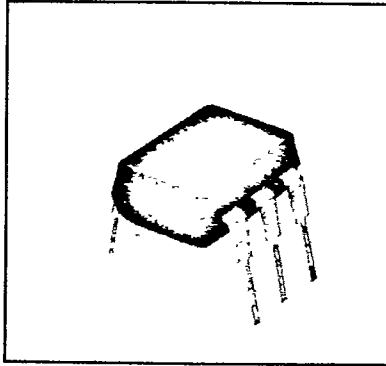
SIEMENS

查询"4N35-004" 供应商

4N35/4N36/4N37

**PHOTOTRANSISTOR
OPTOCOUPLER**

T-41-83



FEATURES

- High Current-Transfer-Ratio (100% Min)
- Standard Dual-In-Line
- 0.5 pF Coupling Capacitance
- Underwriters Lab Approval #E52744
- VDE Approvals 0883/6.80, 0804/1.83

DESCRIPTION

4N35, 4N36, 4N37 are optically coupled pairs employing a Gallium Arsenide infrared LED and a silicon NPN phototransistor. Signal information, including a DC level, can be transmitted by the device while maintaining a high degree of electrical isolation between input and output. The 4N35, 4N36, 4N37 can be used to replace relays and transformers in many digital interface applications, as well as analog applications such as CRT modulation.

Maximum Ratings

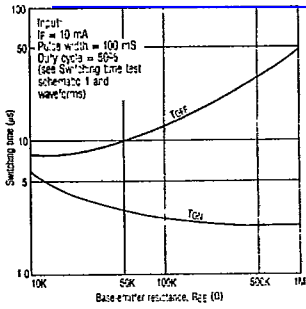
Gallium Arsenide LED	
Power Dissipation at 25°C	100 mW
Derate Linearly from 55°C	1.33 mW/°C
Continuous Forward Current	.60 mA
Peak Reverse Voltage	6.0 V
Detector (Silicon Phototransistor)	
Power Dissipation at 25°C	300 mW
Derate Linearly from 25°C	4.0 mW/°C
Collector-Emitter Breakdown Voltage (BV _{CEO})	30 V
Emitter-Collector Breakdown Voltage (BV _{ECO})	7 V
Collector-Base Breakdown Voltage (BV _{CBO})	70 V
Package	
Isolation Test Voltage in Accordance with DIN57883/6.80	.3750 VAC/5300 VDC
Creepage Path	.8 mm min.
Clearance Path	.7 mm min.
Tracking Index According to VDE 0303	KB100/A
Storage Temperature*	-55 to +150°C
Operating Temperature*	-55 to +100°C
Lead Soldering Time at 260 °C*	10 sec
Relative Humidity at 85°C	.85%

Electrical Characteristics (T_{amb} = 25°C)

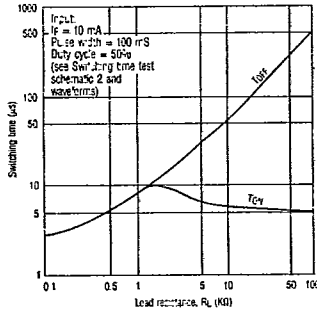
	Min	Typ	Max	Unit	Conditions
Gallium Arsenide LED					
Forward Voltage*	0.9	1.3	1.5	V	I _F = 10 mA
	0.7	1.7	1.7	V	I _F = 10 mA, T _A = -55°C
		1.4	1.4	V	I _F = 10 mA, T _A = 100°C
Reverse Current*		.1	10	µA	V _R = 6.0 V
Capacitance		100		pF	V _R = 0, f = 1 MHz
Phototransistor Detector					
H _{FE}	100	150			V _{CE} = 5.0 V, I _C = 100 µA
BV _{CEO} *	30			V	I _C = 1 mA
BV _{ECO} *	7			V	I _E = 100 µA
I _{CEO} (dark)		5	50	nA	V _{CE} = 10 V, I _E = 0
I _{CEO} (dark)*			500	µA	V _{CE} = 30 V, I _E = 0
					T _A = 100°C
BV _{CBO} *	70			V	I _C = 100 µA
Collector-Emitter Capacitance		2		pF	V _{CE} = 0
Coupled Characteristics					
DC Current Transfer Ratio*	100			%	I _F = 10 mA, T _A = 25°C
					V _{CE} = 10 V
DC Current Transfer Ratio*	40			%	I _F = 10 mA, V _{CE} = 10 V
					T _A = 55° to 100°C
Capacitance, Input to Output*	2.5			pF	f = 1.0 MHz
Resistance, Input to Output*	10 ¹¹			Ω	V _{IO} = 500 V
T _{ON} , T _{OFF} *			10	µs	I _C = 2 mA, R _E = 100 Ω
					V _{CC} = 10 V
Collector-Emitter Saturation Voltage V _{CE(sat)} *			0.3	V	I _F = 10 mA, I _C = 0.5 mA
Input to Output Isolation Current (Pulse Width = 8 m. sec)*				µA	V _{IO} = 2500 VRMS
		100		µA	V _{IO} = 1750 VRMS
		100		µA	V _{IO} = 1050 VRMS
				VDC	
					4N35/36/37 UL Qualified for 7500

*Indicates JEDEC registered data.

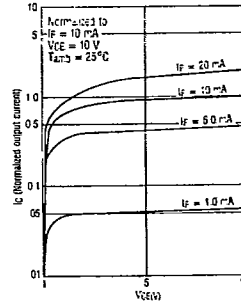
Typical switching characteristics versus load resistance (Static operation)



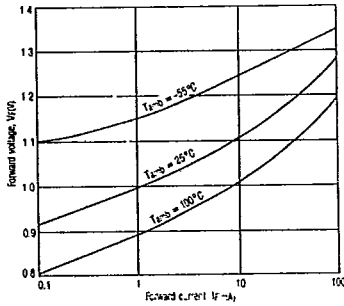
Typical switching times versus load resistance



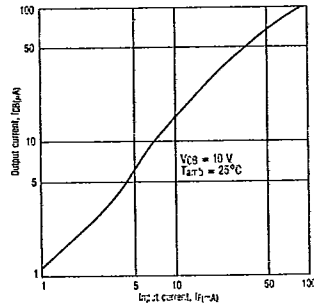
Collector current versus collector voltage



Typical forward voltage versus forward current

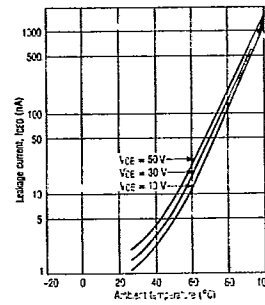


Typical output current (Ic) versus input current

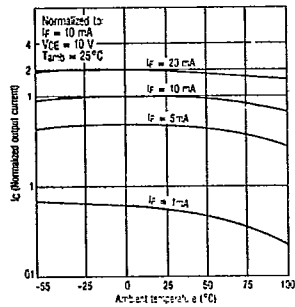


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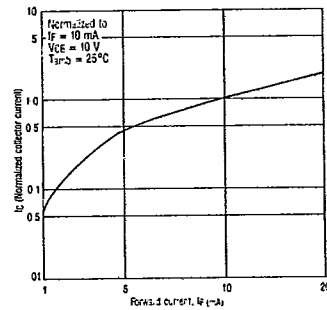
Typical leakage current versus ambient temperature



Output current versus temperature

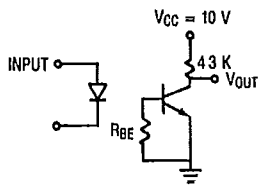


Collector current versus diode forward current

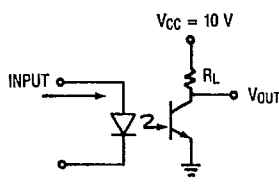


Optocouplers (Optoisolators)

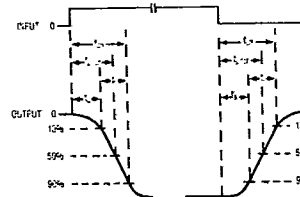
Switching time test schematic and waveforms



Switching time test schematic 1



Switching time test schematic 2



4N35/4N36/4N37