

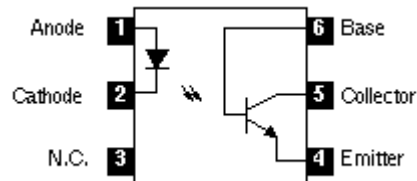
4N25

Optoisolator

NPN Transistor Output

Description:

The 4N25 is a gallium arsenide, infrared emitting diode in a 6-Lead DIP type package coupled with a silicon phototransistor.



Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Infrared Emitting Diode

Reverse Voltage, V_R	3V
Continuous Forward Current, I_F	60mA
Peak Forward Current (Pulse Width 1 μ s, 300pps), I_F	3A
Power Dissipation, P_D	200mW
Derate Above $+25^\circ\text{C}$	2.6mW/ $^\circ\text{C}$

Phototransistor

Collector-Emitter Voltage, V_{CE0}	30V
Emitter-Collector Voltage, V_{ECO}	7V
Collector-Base Voltage, V_{CBO}	70V
Continuous Collector Current, I_C	100mA
Detector Power Dissipation, P_D	200mW
Derate Above $+25^\circ\text{C}$	2.6mW/ $^\circ\text{C}$

Total Device

Isolation Source Voltage (Input-to-Output), V_{ISO}	
Peak	1500V
RMS	1060V
Operating Temperature Range, T_{opr}	-55° to $+100^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 10sec), T_L	$+260^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Infrared Emitting Diode						
Forward Voltage	V_F	$I_F = 10\text{mA}$	-	1.1	1.5	V
Reverse Leakage Current	I_R	$V_R = 3\text{V}$	-	-	10	mA
Capacitance	C_J	$V = 0, f = 1\text{MHz}$	-	50	-	pF

Phototransistor						
Collector-Emitter Dark Current	I_{CEO}	$V_{CE} = 10V, I_F = 0$	-	5	50	nA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_F = 0$	30	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_F = 0$	70	-	-	V
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	$I_E = 100\mu A, I_F = 0$	7	-	-	V
Collector-Emitter Capacitance	C_{CE}	$V_{CE} = 5V, f = 1MHz$	-	7	-	pF
Capacitance	C_J	$V_{CE} = 10V, f = 1MHz$	-	2	-	pF
Coupled Characteristics						
DC Current Transfer Ratio	CTR	$I_F = 10mA, V_{CE} = 10V$	6	-	-	%
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 60mA, I_C = 1.6mA$	100	-	-	V
Isolation Resistance	R_{ISO}	$V = 500V$	100	-	-	G Ohm
Isolation Capacitance	C_{ISO}	$V = 0, f = 1MHz$	-	-	2	pF
Switching Times	t_r, t_f	$V_{CE} = 10V, I_{CE} = 2mA, R_L = 100 \text{ Ohms}$	-	5	-	μs
		$V_{CE} = 10V, I_{CB} = 50\mu A, R_L = 100 \text{ Ohms}$	-	3	-	μs

