

FEATURES

- Current Transfer Ratio, 20% Minimum
- Two Isolated Channels Per Package
- Isolation Test Voltage, 5300 VAC_{RMS}
- Underwriters Lab File #E52744
- VDE #0884 Available with Option 1

DESCRIPTION

The MCT6 is an industry standard dual optocoupler consisting of a Gallium Arsenide infrared LED and a silicon phototransistor. The MCT6 is constructed with a high voltage insulation, double molded packaging process which offers 5300 VAC_{RMS} isolation test capability.

Maximum Ratings

Emitter (each channel)

Reverse Voltage	3 V
Continuous Forward Current	60 mA
Power Dissipation at 25°C Ambient	100 mW
Derate Linearly from 25°C	1.3 mW/°C

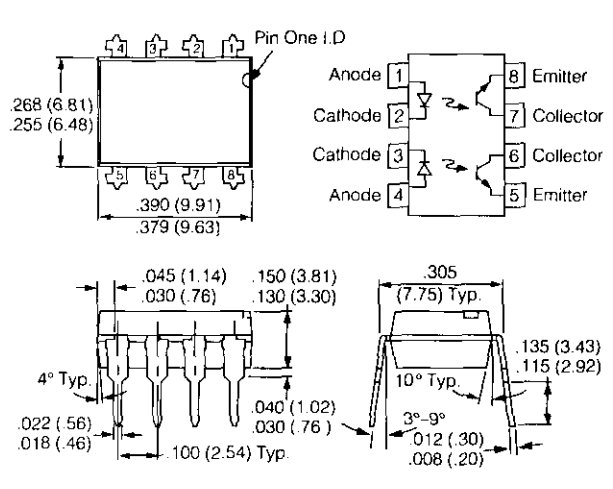
Detector (each channel)

Collector-Emitter Breakdown Voltage	30V
Emitter-Collector Breakdown Voltage	6V
Power Dissipation at 25°C Ambient	150 mW
Derate Linearly from 25°C	2 mW/°C

Package

Total Package Dissipation	
at 25°C (LED + Detector)	400 mW
Derate Linearly from 25°C	5.33 mW/°C
Storage Temperature	-55°C to +150°C
Operating Temperature	-55°C to +100°C
Lead Soldering Time at 260°C	10 sec.
Isolation Test Voltage	5300 VAC _{RMS}
Pollution Degree (DIN VDE 0110)	2
Isolation Resistance	
V _{IO} =500 V, T _A =25°C	R _{IO} =10 ¹² Ω
V _{IO} =500 V, T _A =100°C	R _{IO} =10 ¹¹ Ω

Package Dimensions in Inches (mm)



Electrical Characteristics (T_A=25°C)

	Symbol	Min.	Typ.	Max.	Unit	Condition
Emitter						
Forward Voltage	V _F	1.1	1.5		V	I _F =20 mA
Reverse Current	I _R		10		μA	V _R =3 V
Junction Capacitance	C _J	25			pF	V _F =0 V, f=1 MHz
Detector						
Breakdown Voltage						
Collector-Emitter	BV _{CEO}	30			V	I _C =10 μA, I _F =0 mA
Emitter-Collector	BV _{EEO}	6			V	I _E =10 μA, I _F =0 mA
Package						
DC Current						
Transfer Ratio	CTR _{DC}	20	50		%	V _{CE} =10 V, I _F =10 mA
Saturation Voltage						
Collector-Emitter	V _{CEsat}		0.4		V	I _{CE} =2 mA, I _F =16 mA
Switching Times						
t _{on}		3			μs	R _F =100 Ω, V _{CE} =10 V
t _{off}		15			μs	I _C =2 mA

Figure 1. Forward voltage versus forward current

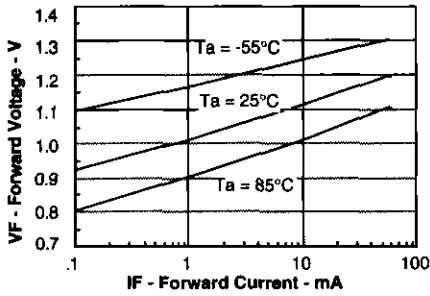


Figure 2. Normalized non-saturated and saturated CTR at $T_A = 25^\circ\text{C}$ versus LED current

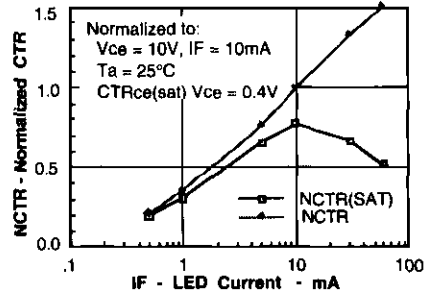


Figure 3. Normalized non-saturated and saturated CTR at $T_A = 50^\circ\text{C}$ versus LED current

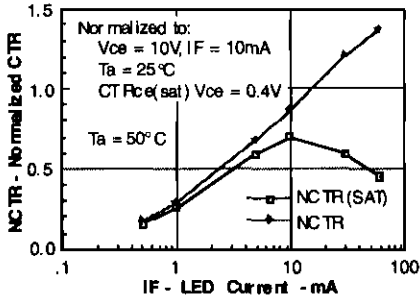


Figure 4. Normalized non-saturated and saturated CTR at $T_A = 70^\circ\text{C}$ versus LED current

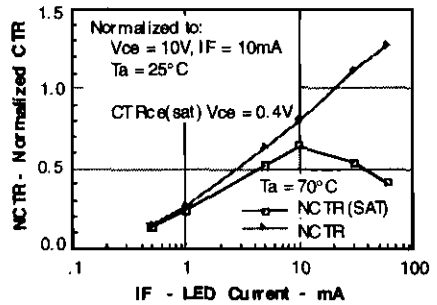


Figure 5. Normalized non-saturated and saturated CTR at $T_A = 85^\circ\text{C}$ versus LED current

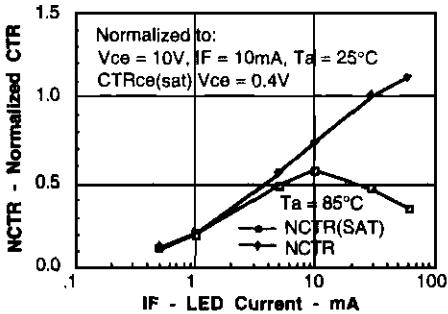


Figure 6. Collector-emitter current versus temperature and LED current

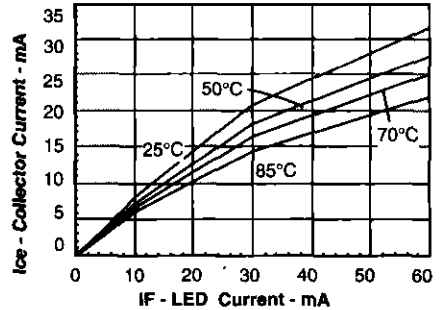


Figure 7. Collector-emitter leakage current versus temperature

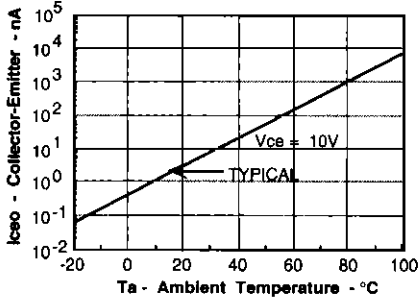


Figure 8. Propagation delay versus collector load resistor

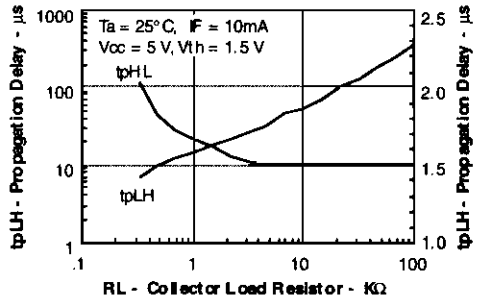


Figure 9. Non-saturated Switching Timing

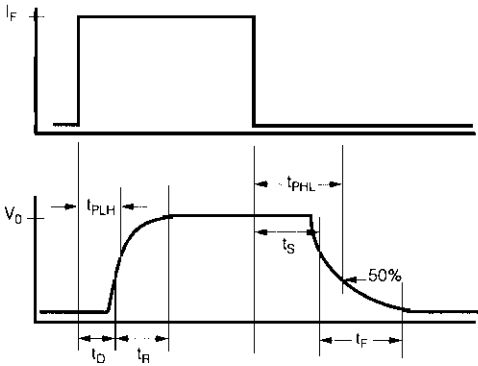


Figure 10. Switching Schematic

