SDD451



DC Input
Optocoupler

DESCRIPTION

The SDD451 consists of a photo Darlington transistor optically coupled to a light emitting diode. Optical coupling between the input LED and output phototransistor allows for high isolation levels while maintaining low-level DC signal control capability. The SDD451 provides an optically isolated method of controlling many interface applications such as telecommunications, industrial control and instrumentation circuitry.

FEATURES

- High current transfer ratio (CTR: MIN.600% at If=1mA, Vce=2V)
- High input-to-output isolation package (3750 Vrms)
- 4 Pin small outline package

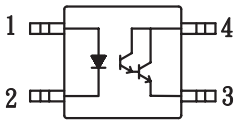
APPLICATIONS

- System appliances, measuring instruments
- Industrial robots
- Copiers, automated vending machines
- Signal transmission between varying circuits
- Telephone sets
- Fax machines
- Interface with various power supply circuits
- Numerical control machines

OPTIONS/SUFFIXES

- -TR Tape and Reel

SCHEMATIC DIAGRAM



1. Anode
2. Cathode
3. Emitter
4. Collector

MAXIMUM RATINGS

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-40		125
Operating Temperature	°C	-40		100
Continuous Input Current	mA			50
Transient Input Current	A			1
Reverse Input Control Voltage	V			6
Output Power Dissipation	mW			170

APPROVALS

- UL and C-UL approved File#E201932

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SDD451



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ELECTRICAL CHARACTERISTICS - 25°

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.4	If = 20mA
LED Reverse Current	μ A			10	VR=4V
OUTPUT SPECIFICATIONS					
Collector-Emitter Breakdown Voltage	V	35			
Emitter-Collector Voltage	V	5			
Dark Current	μ A			1	Vce = 10V, If=0
Floating Capacitance	p F		0.6	1	V= 0V, f=1.0MHz
Saturation Voltage	V			1	If = 20mA, Ic = 1mA
Current Transfer Ratio	%	600		7500	If = 1mA, Vce = 2V
Rise Time	μ s		60		Ic = 2mA, Vce = 2V, Rc = 100 ohms
Fall Time	μ s		50		Ic = 2mA, Vce = 2V, Rc = 100 ohms
COUPLED SPECIFICATIONS					
Isolation Voltage	V	5000			T = 1 minute
Isolation Resistance	G Ω	50			
Cut off Frequency	k H z		7		Ic = 2mA, Vcc = 5V, Rc = 100 ohms

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Fig.1 Forward Current vs. Ambient Temperature

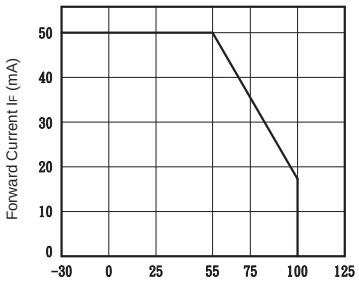


Fig.2 Collector Power Dissipation vs. Ambient Temperature

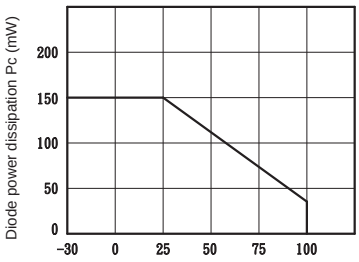


Fig.3 Peak Forward Current vs. Duty Ratio

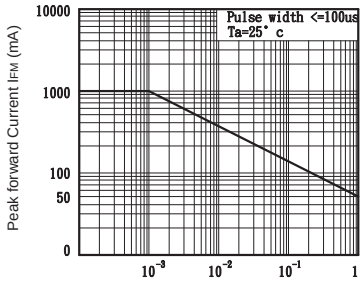


Fig.4 Forward Current vs. Forward Voltage

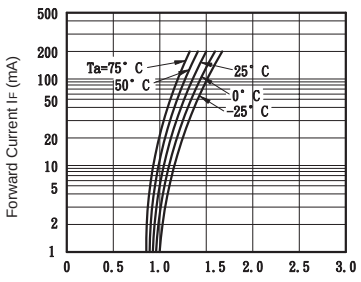


Fig.5 Current Transfer Ratio vs. Forward Current

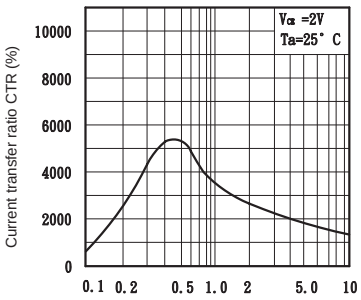


Fig.6 Collector Current vs. Collector-emitter Voltage

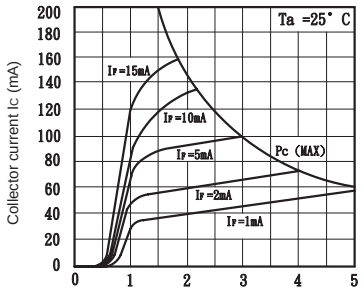


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

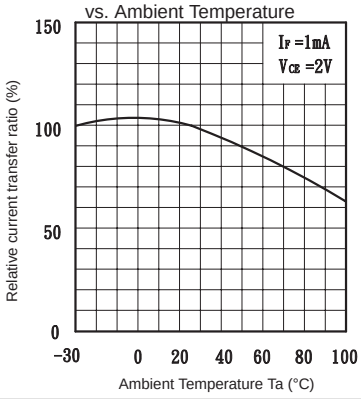


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

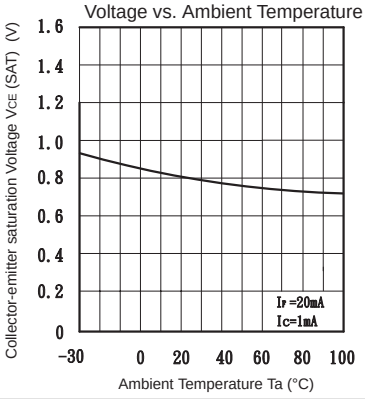


Fig.9 Collector Dark Current vs. Ambient Temperature

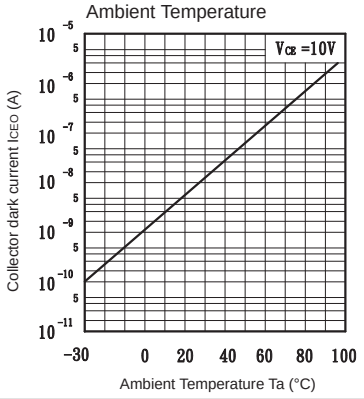


Fig.10 Response Time vs. Load Resistance

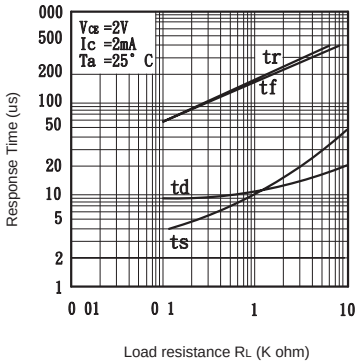
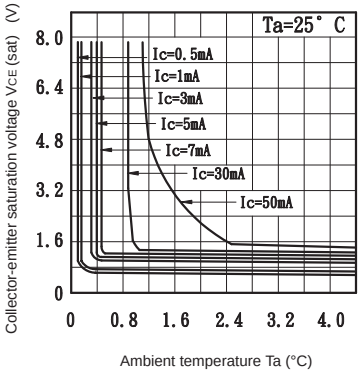


Fig.11 Collector-emitter Saturation Voltage vs. Forward current



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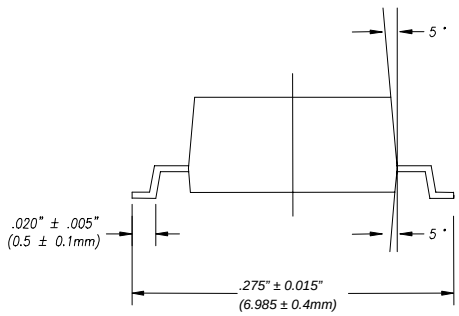
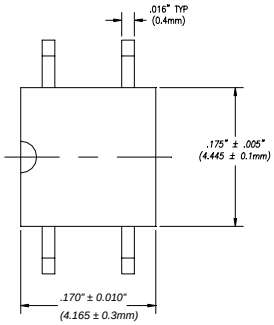
MECHANICAL DIMENSIONS

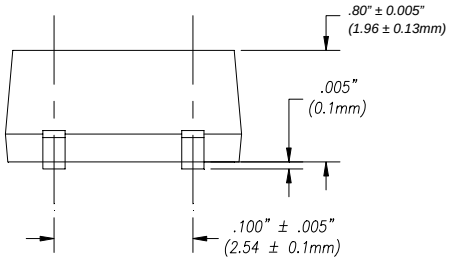
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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