SDT450

DC Input
Optocoupler

DESCRIPTION

The SDT450 consists of a phototransistor 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 SDT450 provides an optically isolated method of controlling many interface applications such as telecommunications, industrial control and instrumentation circuitry.

FEATURES

- Ultra miniature 4-pin small outline package
- High input-to-output isolation package (3,750 Vrms)
- CTR Range: 50%-600%

APPLICATIONS

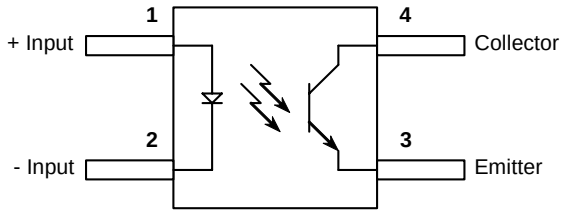
- Home Appliances
- Office Automation Equipment
- Vending Machines
- Digital logic inputs
- Power Supplies

OPTIONS/SUFFIXES*

- -TR Tape and Reel

NOTE: Suffixes listed above are not included in marking on device for part number identification.

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS*

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	°C	-55		125
Operating Temperature	°C	-40		100
Input Forward Current	mA			50
Input Peak Forwad Current	A			1
Reverse Input Voltage	V			6
Total Power Dissipation	mW			170

*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

APPROVALS

- UL / C-UL Approved File #E201932

ELECTRICAL CHARACTERISTICS - 25°C

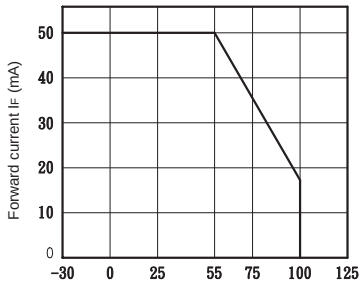
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
Forward Voltage	V		1.2	1.4	If = 20mA
Reverse Current	μ A			10	Vr = 4V
Terminal Capacitance	p F		30	250	V = 0, f = 1KHz
OUTPUT SPECIFICATIONS					
Collector-Emitter Breakdown Voltage	V	60			Ic = 10uA, If = 0
Emitter-Collector Breakdown Voltage	V	5			If = 100uA, If = 0
Collector Dark Current	μ A			0.1	Vce = 20V, If = 0
Floating Capacitance	p F		0.6	1	V= 0V, f = 1.0 MHz
Vce Saturation Voltage	V		0.1	0.3	If = 20mA, Ic = 1mA
Current Transfer Ratio	%	50		600	If = 5mA, Vce = 5V
Rise Time	μ s		5	20	Ic= 2mA, Vce =2V, RL = 100ohms
Fall Time	μ s		4	20	Ic= 2mA, Vce = 2V, RL = 100 ohms
COUPLED SPECIFICATIONS					
Isolation Voltage	V	3750			T = 1 minute
Isolation Resistance	G Ω	50			DC500V
CTR CLASSIFICATION					
-A	%	80		160	
-B	%	130		260	
-C	%	200		400	
-D	%	300		600	
-E	%	50		600	

PERFORMANCE DATA

SDT450

Forward Current vs. Ambient Current

N = 100, Ambient Temperature = 25°C



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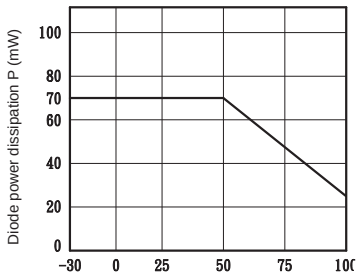
Diode Power Dissipation vs. Ambient Temperture

N = 100, Ambient Temperature = 25°C



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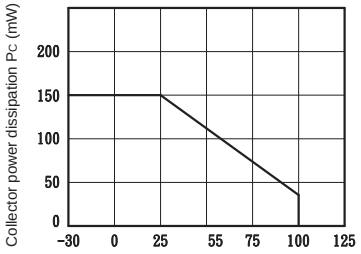
Collector Power Dissipation vs. Ambient Temperature

N = 100



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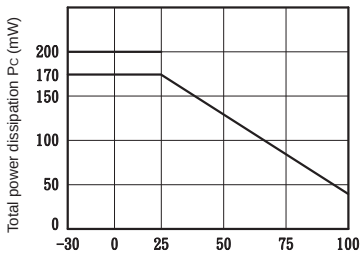
Total Power Dissipation vs. Ambient Temperature

N = 100



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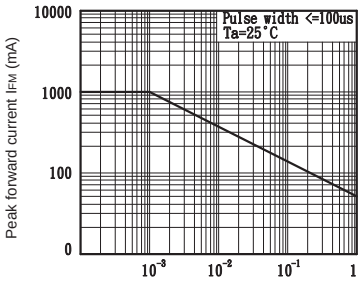
Peak Forward Current vs. Duty Ratio

N = 100, Ambient Temperature = 25°C



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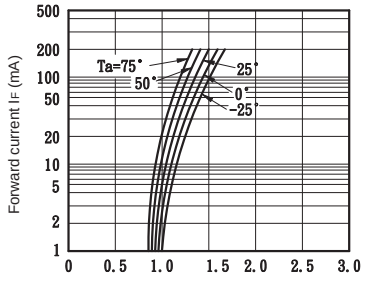
Forward Current vs. Forward Voltage

N = 100, Ambient Temperature = 25°C



PERFORMANCE DATA

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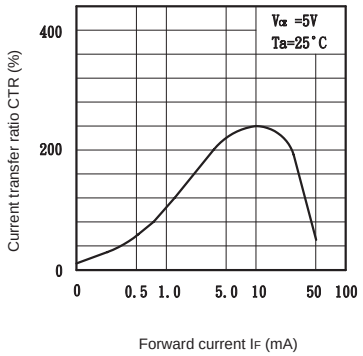
Current Transfer Ratio vs. Forward Current

N = 100, Ambient Temperature = 25°C



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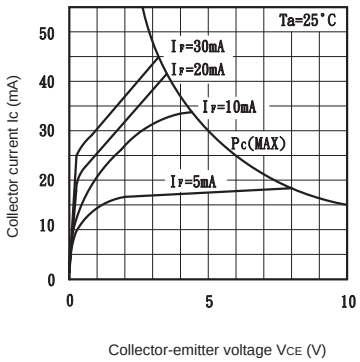
Collector Current vs. Collector-Emitter Voltage

N = 100, Ambient Temperature = 25°C



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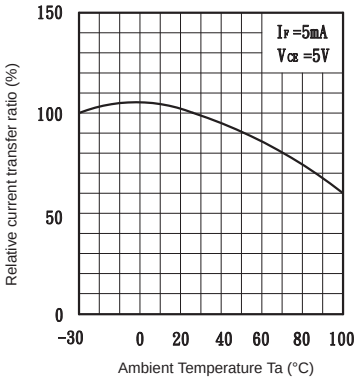
Relative Current Transfer Ratio vs. Ambient Temperature

N = 100



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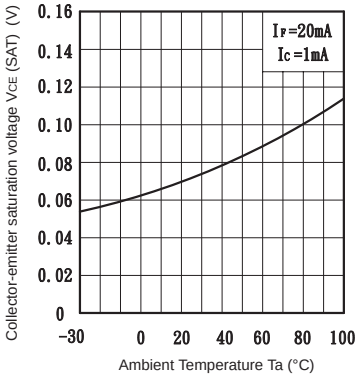
Collector-Emitter Saturation Voltage vs. Ambient Temperature

N = 100



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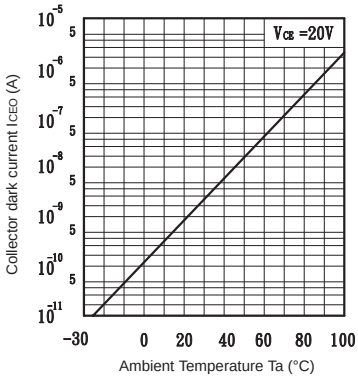
Collector Dark Current vs. Ambient Temperature

N = 100



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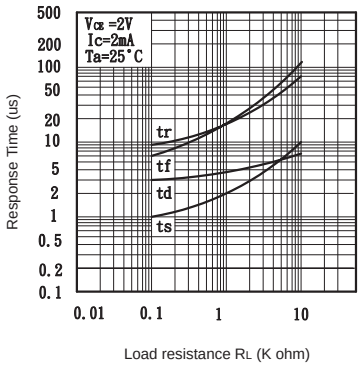
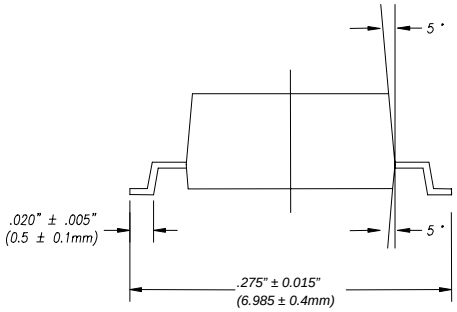
Response Time vs. Load Resistance

N = 100, Ambient Temperature = 25°C

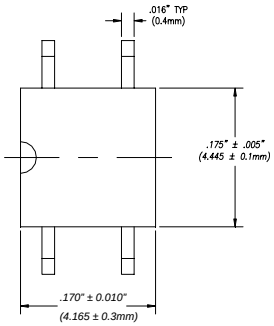


MECHANICAL DIMENSIONS

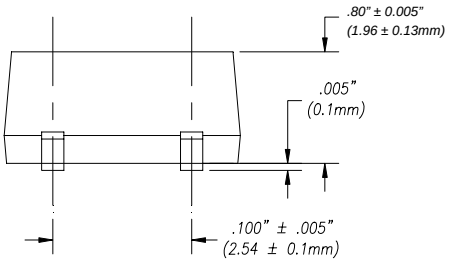
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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