SOLID STATE OPTRONICS

SDD450



DC Input
Photo-Darlington Optocoupler

DESCRIPTION

The SDD450 consists of a Photo Darlington transistor optically coupled to a light emitting diode. Optical coupling between the input LED and output Photo Darlington allows for high isolation levels while maintaining low-level DC signal control capability. The SDD450 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%)
- High input-to-output isolation voltage (3,750 Vrms)
- Ultra-miniature 4 pin SOP package
- High Load Voltage (Vceo = 300V MIN)

APPLICATIONS

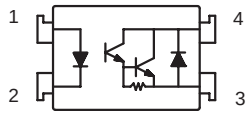
- Home Appliances
- Office Automation Equipment
- Telecom / Datacom
- Power Supplies
- Fax / Modems

OPTIONS/SUFFIXES*

- -TR Tape and Reel

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

SCHEMATIC DIAGRAM



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

ABSOLUTE 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

*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					
Input Forward Voltage	V		1.2	1.4	If =10mA
Peak Forward Voltage	V			3.5	Ifm = 0.5A
Reverse Current	μ A			10	Vr =4V
Terminal Capacitance	p F		30		V = 0, f = 1KHz
OUTPUT SPECIFICATIONS					
Collector-Emitter Breakdown Voltage	V	300			Ic = 10uA
Dark Current	μ A			1	Vce = 10V, If = 0
Floating Capacitance	p F		0.6	1	Vce = 0V, f = 1.0MHz
Saturation Voltage	V			1	If = 20mA, Ic = 1mA
Current Transfer Ratio	%	600	1600	7500	If = 1mA, Vce = 2V
Rise Time	μ s		60	300	Ic = 2mA, Vce = 2V, RL = 100 ohms
Fall Time	μ s		50	250	Ic = 2mA, Vce = 2V, RL = 100 ohms
COUPLED SPECIFICATIONS					
Isolation Voltage	V	3750			T = 1 minute
Isolation Resistance	G Ω	50			
Cut-off Frequency	k H z		7		Ic = 2mA, Vcc = 5V, RL = 100 ohms

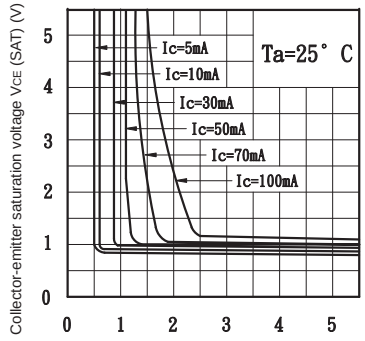
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PERFORMANCE DATA

SDD450

Collector-Emitter Saturation Voltage vs. Forward Current

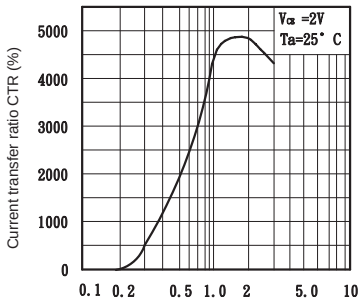
N = 100, Ambient Temperature = 25°C



SDD450

Current Transfer Ratio vs. Forward Current

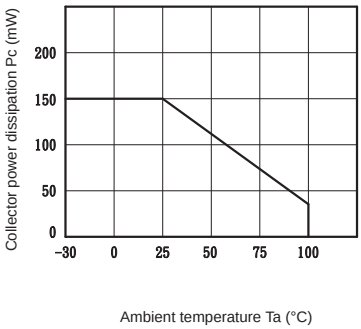
N = 100, Ambient Temperature = 25°C



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Collector Power Dissipation vs. Ambient Temperature

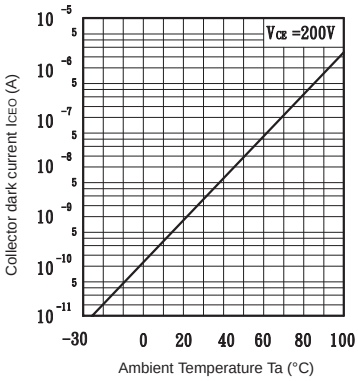
N = 100



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Collector Dark Current vs. Ambient Temperature

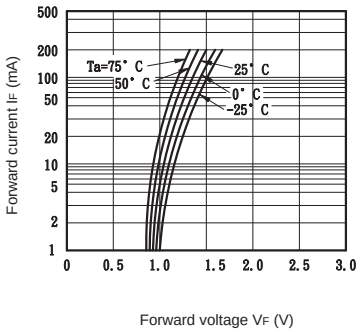
N = 100



SDD450

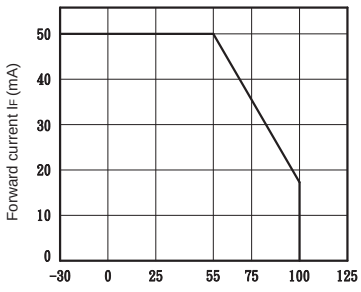
Forward Current vs. Forward Voltage

N = 100, Ambient Temperature = 25°C



SDD450

Forward Current vs. Ambient Temperature

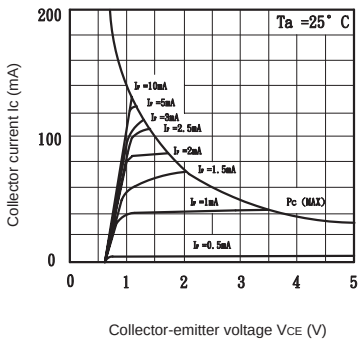


PERFORMANCE DATA

SDD450

Collector Current vs. Collector-Emitter Voltage

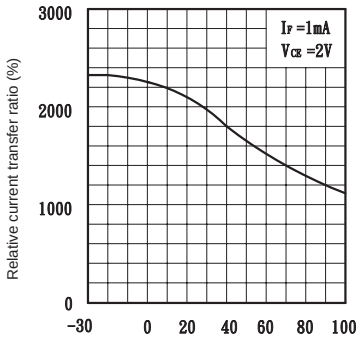
N = 100, Ambient Temperature = 25°C



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Relative Current Transfer Ratio vs. Ambient Temperature

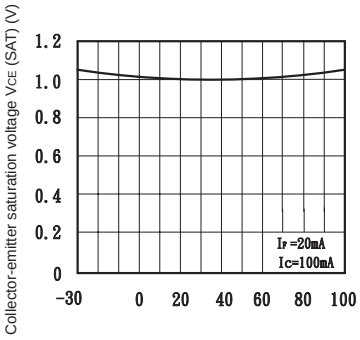
N = 100



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Collector-Emitter Saturation Voltage vs. Ambient Temperature

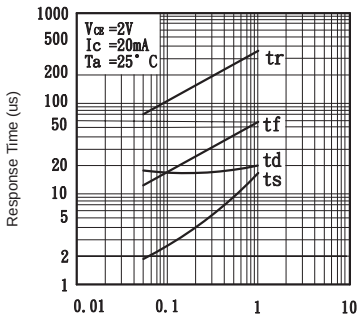
N = 100



SDD450

Response Time vs. Load Resistance

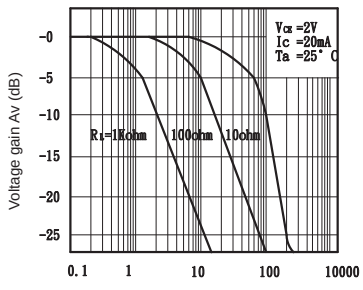
N = 100, Ambient Temperature = 25°C



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Frequency Response

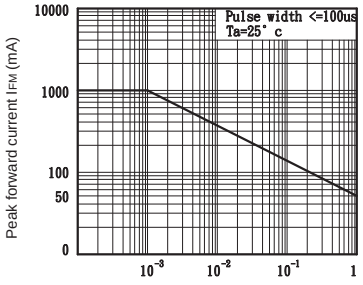
N = 100, Ambient Temperature = 25°C



SDD450

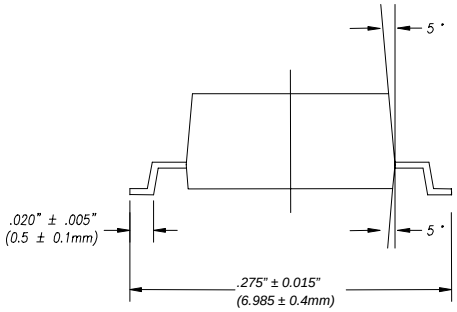
Peak Forward Current vs. Duty Ratio

N = 100, Ambient Temperature = 25°C

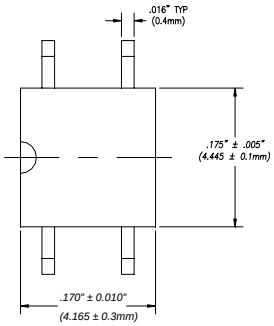


MECHANICAL DIMENSIONS

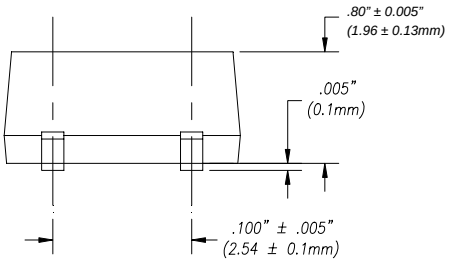
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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