


 AC Input  
Optocoupler

## DESCRIPTION

The SAT450 consists of a phototransistor optically coupled to a pair of light emitting diodes for AC input operation. Optical coupling between the input LEDs and output phototransistor allows for high isolation levels while maintaining low-level AC signal control capability. The SAT450 provides an optically isolated method of controlling many interface applications such as telecommunications, industrial control and instrumentation circuitry.

## FEATURES

- High input-to-output isolation package (3750 Vrms)
- Low input power consumption
- High stability
- AC/DC input control

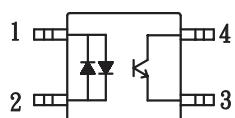
## APPLICATIONS

- Registers, copiers, Automatic Vending Machines
- System appliances, measuring instruments
- Computer terminals, PLCs
- Telecommunications, telephones
- Home Appliances
- Digital logic inputs
- Microprocessor inputs
- Switching power supply, laser beam printers, etc.

## OPTIONS/SUFFIXES

- -TR Tape and Reel

## SCHEMATIC DIAGRAM



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

## MAXIMUM RATINGS

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

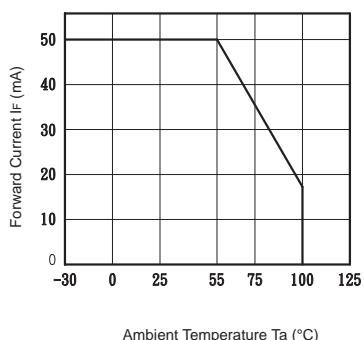
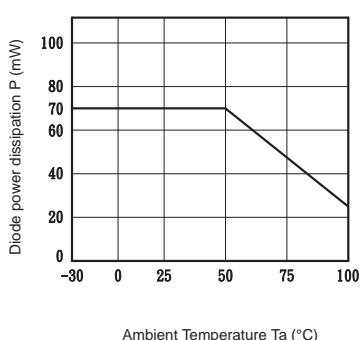
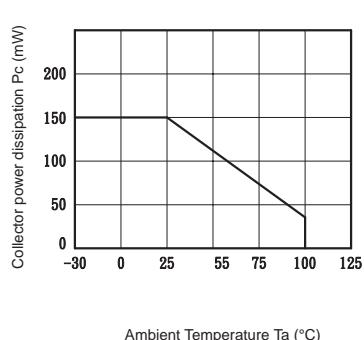
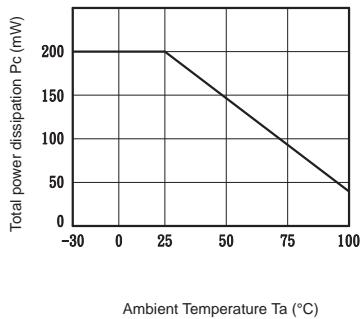
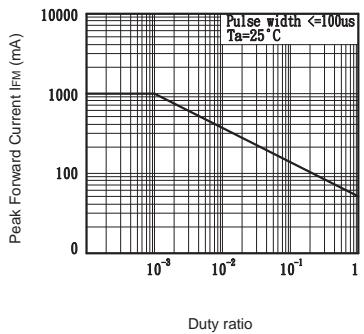
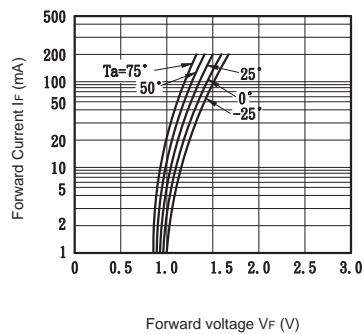
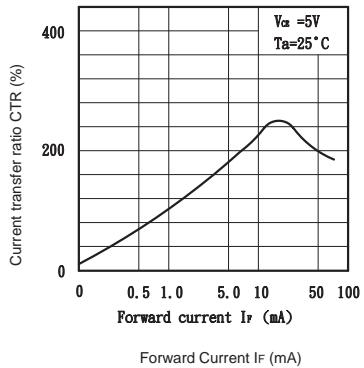
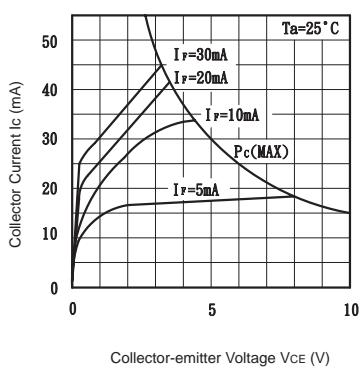
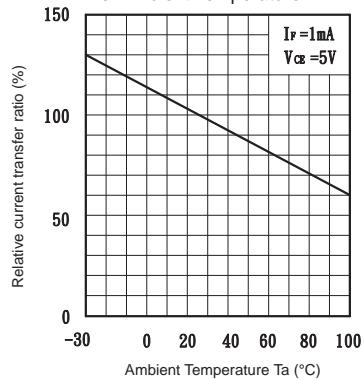
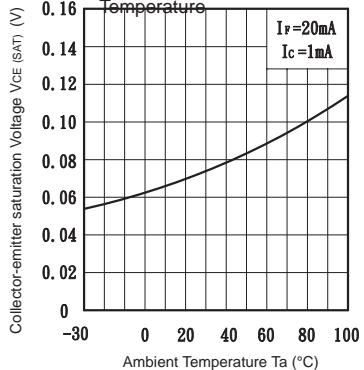
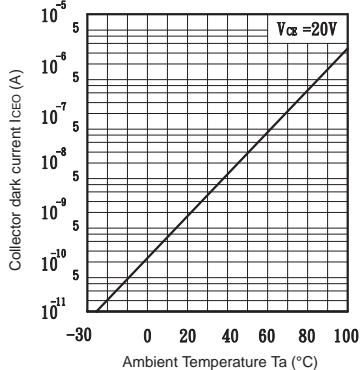
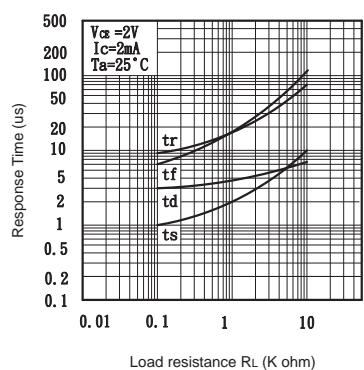
## APPROVALS

- UL and C-UL Approved File#E201932

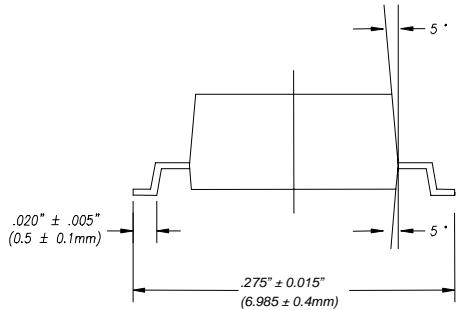

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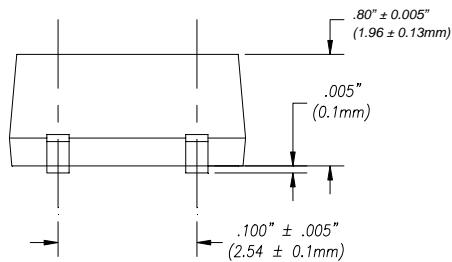
**ELECTRICAL CHARACTERISTICS - 25°**

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
<b>INPUT SPECIFICATIONS</b>					
LED Forward Voltage	V		1.2	1.4	If = 20mA
Terminal Capacitance	p F		30	250	V=0, f=1kHz
<b>OUTPUT SPECIFICATIONS</b>					
Collector-Emitter Breakdown Voltage	V	60			Ic = 1uA
Emitter-Collector Breakdown Voltage	V	5			Ie = 1uA
Dark Current	µ A			0.1	Vce = 20V
Floating Capacitance	p F		0.6	1	Vce = 0V, f=1MHz
Saturation Voltage	V		0.1	0.3	If = ±20mA, Ic = 1mA
Current Transfer Ratio	%	20		400	If = ±1mA, Vce = 5V
Rise Time	µ s		4		Ic = 2mA, Vce = 2V, Rc = 100 ohms
Fall Time	µ s		3		Ic = 2mA, Vce = 2V, Rc = 100 ohms
<b>COUPLED SPECIFICATIONS</b>					
Isolation Voltage	V	3750			T = 1 minute
Isolation Resistance	G Ω	50			

**Fig.1** Forward Current vs. Ambient Temperature

**Fig.2** Diode Power Dissipation vs. Ambient Temperature

**Fig.3** Collector Power Dissipation vs. Ambient Temperature

**Fig.4** Total Power Dissipation vs. Ambient Temperature

**Fig.5** Peak Forward Current vs. Duty Ratio

**Fig.6** Forward Current vs. Forward Voltage

**Fig.7** Current Transfer Ratio vs. Forward Current

**Fig.8** Collector Current vs. Collector-emitter Voltage

**Fig.9** Relative Current Transfer Ratio vs. Ambient Temperature

**Fig.10** Collector-emitter Saturation Voltage  $V_{ce(sat)}$  vs. Ambient Temperature

**Fig.11** Collector Dark Current vs. Ambient Temperature

**Fig.12** Response Time vs. Load Resistance



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**MECHANICAL DIMENSIONS**
**4 PIN SMALL OUTLINE PACKAGE**

**END VIEW**

**TOP VIEW**

**BACK VIEW**