

DC Input 80V **Dual Channel Optocoupler**







Description

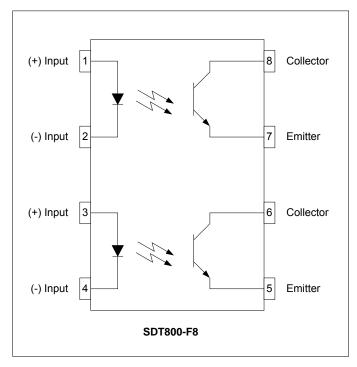
The SDT800-F8 consists of two phototransistors optically coupled to two light emitting diodes. Optical coupling between the input IR LEDs and output phototransistors allows for high isolation levels while maintaining low-level DC signal control capability. The SDT800-F8 provides an optically isolated method of controlling many interface applications such as telecommunications, industrial control and instrumentation circuitry.

The SDT800-F8 comes standard in a miniature 8 pin SSOP package.

Applications

- Registers, Copiers, Automatic Vending Machines
- System Appliances, Measuring Instruments
- Feedback Control Circuits
- Telecommunication Equipment, Telephones
- Home Appliances
- **Digital Logic Inputs**
- Microprocessor Inputs
- Switching Power Supplies

Schematic Diagram



Features

- $V_{CEO} = 80V$
- Small 8 pin SSOP package (0.050" lead pitch)
- Low input power consumption
- High stability
- CTR Range 20 320% (Binning Optional)
- High Isolation Voltage (3,750V_{RMS})
- Long Life / High Reliability
- RoHS / Pb-Free / REACH Compliant

Agency Approvals

UL / C-UL: File # E201932

VDF: File # 40035191 (EN 60747-5-2)

Absolute Maximum Ratings

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 Maximum Ratings may cause permanent damage to the device and may adversely affect reliability.

Storage Temperature	55 to +150°C
Operating Temperature	55 to +110°C
Continuous Input Current	30mA
Reverse Input Control Voltage	5V
Input Power Dissipation	50mW
Output Power Dissipation	125mW
Total Power Dissipation	300mW
Solder Temperature - Wave (10sec)	260°C
Solder Temperature - IR Reflow (10sec)	260°C

Ordering Information

Part Number Description

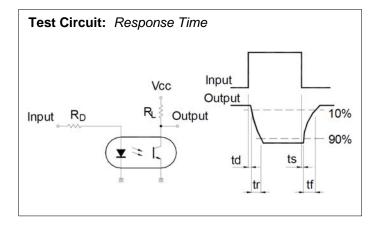
SDT800-F8 8 pin SSOP, Tape and Reel (2000/Reel)

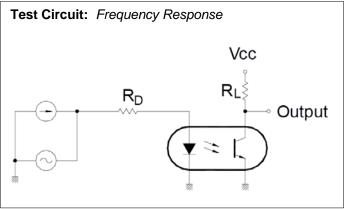
NOTE: Suffixes listed above are not included in marking on device for part number identification



Electrical Characteristics, T_A = 25°C (unless otherwise specified)

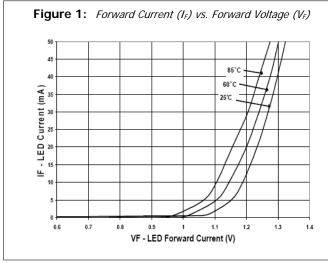
Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Input Specifications						
LED Forward Voltage	V _F	-	1.2	1.55	V	I _F = 10mA
LED Reverse Voltage	BV _R	5	-	-	V	I _R = 10μA
Terminal Capacitance	Ct	-	25	-	pF	V=0, f=1KHz
Input Reverse Current	I _R	-	0.1	100	μА	V _R =6V
Output Specifications						
Collector-Emitter Voltage	V _{CEO}	80	-	-	V	I _C =10μA
Emitter-Collector Voltage	V _{COE}	7	-	-	V	I _E =10μA
Collector Dark Current	I _{CEO}	-	5	50	nA	V _{CE} =10V
Collector Emitter Capacitance	C _{CE}	-	10	-	pF	V _{CE} =0, f=1MHz
Saturation Voltage	V _{CE(sat)}	-	0.2	0.4	V	I _F =10mA, I _C =2.5mA
Coupled Specifications						
Rise Time	T _R	-	5.0	-	μS	$I_C=2mA$, $V_{CC}=2V$, $R_L=100\Omega$
Fall Time	T _F	-	4.0	-	μS	$I_C=2mA$, $V_{CC}=2V$, $R_L=100\Omega$
Current Transfer Ratio			•	•		
- A	CTR	40	-	80	%	I _F =10mA, V _{CE} =5V
	CIK	13	-	-	%	I _F =1mA, V _{CE} =5V
- B	CTR	63	-	125	%	I _F =10mA, V _{CE} =5V
	CIK	22	-	-	%	I _F =1mA, V _{CE} =5V
- C	CTR	100	1	200	%	I _F =10mA, V _{CE} =5V
	CIK	34	-	1	%	I _F =1mA, V _{CE} =5V
- D	CTR	160	-	320	%	I _F =10mA, V _{CE} =5V
		48	-	-	%	I _F =1mA, V _{CE} =5V
- E	CTR	20	-	-	%	I _F =10mA, V _{CE} =5V
Isolation Specifications						
Isolation Voltage	V _{ISO}	3750	-	-	V _{RMS}	RH ≤ 50%, t=1min
Input-Output Resistance	R _{I-O}	-	10 ¹²	-	Ω	V _{I-O} = 500V _{DC}

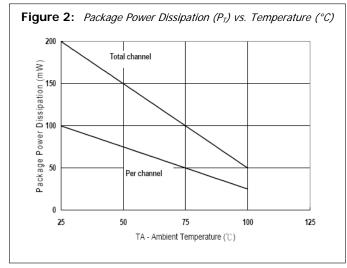


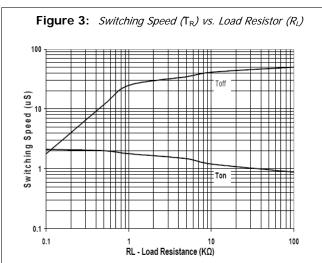


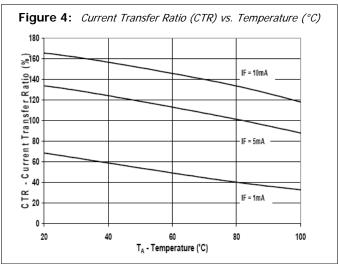


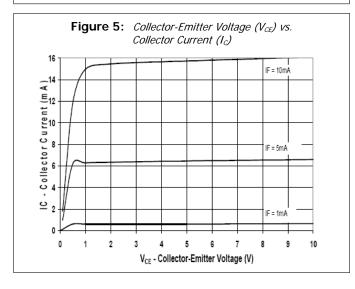
SDT800-F8 Performance & Characteristics Plots, T_A = 25°C (unless otherwise specified)

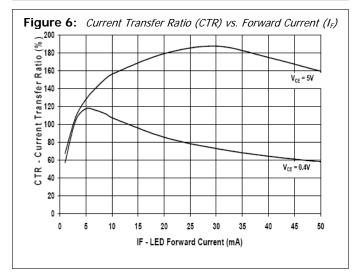








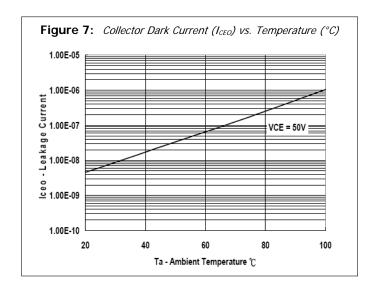






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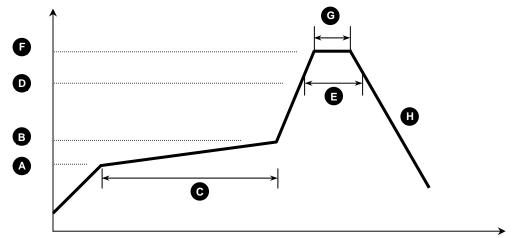




SDT800-F8 Solder Reflow Temperature Profile Recommendations

(1) Infrared Reflow:

Refer to the following figure as an example of an optimal temperature profile for single occurrence infrared reflow. Soldering process should not exceed temperature or time limits expressed herein. Surface temperature of device package should not exceed 250°C:



Process Step	Description	Parameter
Α	Preheat Start Temperature (°C)	150°C
В	Preheat Finish Temperature (°C)	180°C
С	Preheat Time (s)	90 - 120s
D	Melting Temperature (°C)	230°C
E	Time above Melting Temperature (s)	30s
F	Peak Temperature, at Terminal (°C)	260°C
G	Dwell Time at Peak Temperature (s)	10s
Н	Cool-down (°C/s)	<6°C/s

(2) Wave Solder:

Maximum Temperature: 260°C (at terminal)

Maximum Time: 10s

Pre-heating: 100 - 150°C (30 - 90s)

Single Occurrence

(3) Hand Solder:

Maximum Temperature: 350°C (at tip of soldering iron) 3s

Maximum Time:

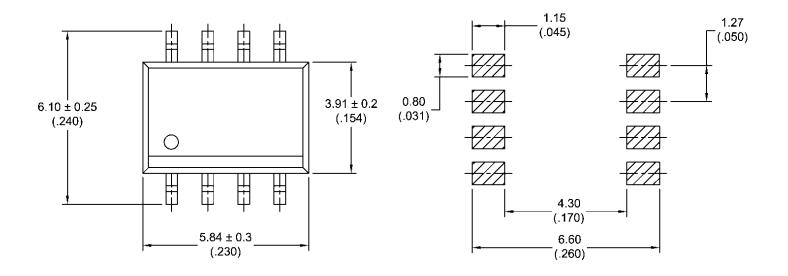
Single Occurrence

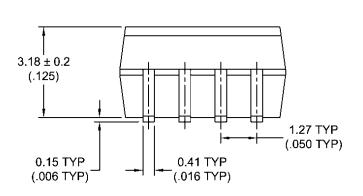


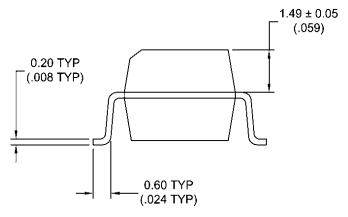
SDT800-F8 Package Dimensions

8 PIN SSOP Package

Note: All dimensions in millimeters [mm] with inches in parenthesis ()





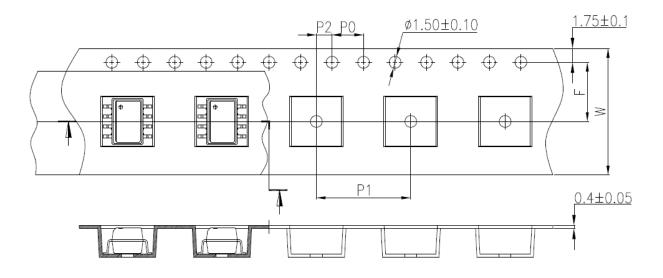




SDT800-F8 Packaging Specifications

Tape & Reel Specifications (T&R)

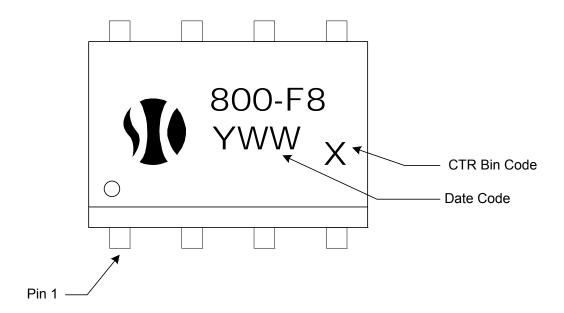
Note: All dimensions in millimeters [mm] with inches in parenthesis ()



Specification	Symbol	Dimensions, mm (inches)
Tape Width	W	16 ± 0.3 (0.63)
Sprocket Hole Pitch	P0	4 ± 0.1 (0.15)
Compartment Location	F P2	7.5 ± 0.1 (0.295) 2 ± 0.1 (0.079)
Compartment Pitch	P1	12 ± 0.1 (0.472)



SDT800-F8 Package Marking



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