



STR8063 Random Phase 600V / 1.2A

AC Solid State Relay



Description

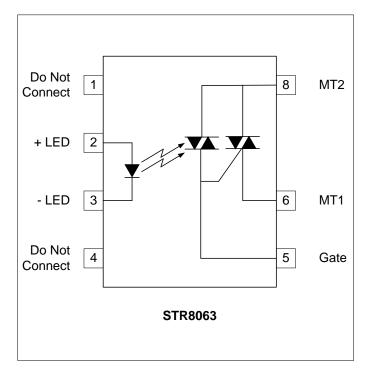
The STR8063 is a bi-directional, single-pole, single-throw, normally open multipurpose relay. The device consists of an IR LED optically coupled to a random phase switching AC output structure. It has a high blocking voltage (600V) and can handle continuous load currents of up to $1.2A_{\text{RMS}}$. The STR8063 assures no false triggering under adverse conditions.

The STR8063 comes standard in a compact 8 pin DIP package. The package construction makes it ideal for high-density board applications.

Applications

- Valve Control
- Meter Reading Systems
- Heating Elements
- Home Appliances
- Solenoid / Motor Control
- Dimmer Control

Schematic Diagram



Features

- High Blocking Voltage (600V)
- 1.2A_{RMS} Continuous Load Current
- Random Phase Switching
- Low Control Current (<10mA)
- High Isolation Voltage (up to 5kV_{RMS})
- Long Life / High Reliability
- RoHS / Pb-Free / REACH Compliant

Agency Approvals

- UL
- C-UL

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 +125°C
Operating Temperature	
Continuous Input Current	50mA
Transient Input Current	500mA
Reverse Input Control Voltage	
Input Power Dissipation	40mW
Output Power Dissipation	800mW
Solder Temperature – Wave (10sec)	260°C
Solder Temperature – IR Reflow (10sec)	260°C

Ordering Information

Part Number	Description
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STR8063	8 pin DIP, (50/Tube)
STR8063-H	5kV _{RMS} Viso, 8 pin DIP, (50/Tube)
STR8063-S	8 pin SMD, (50/Tube)
STR8063-HS	5kV _{RMS} , 8 pin SMD, (50/Tube)
STR8063-STR	8 pin SMD, Tape and Reel (1000/Reel)
STR8063-HSTR	5kV _{RMS} , 8 pin SMD, Tape and Reel (1000/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)

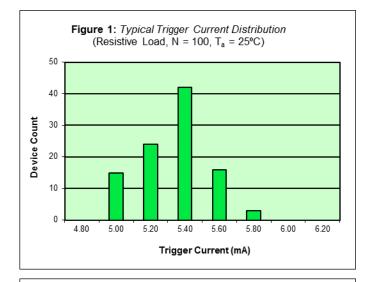
Parameter	Symbol	Min.	Тур.	Max.	Units	Test Conditions	
Input Specifications							
LED Forward Voltage	V _F	-	1.4	1.8	V	I _F = 10mA	
LED Reverse Voltage	BV _R	5	-	-	V	I _R = 10μA	
Trigger Current ¹	I _{FT}	-	-	10	mA	Resistive Load	
Output Specifications							
Peak Off-State Voltage	V _{DRM}	600	-	-	V	I _{DRM} =10μA	
Continuous Load Current	I _{T(RMS)}	-	-	1.2	А	I _{FT} =10mA	
Peak On-State Voltage	V _{TM}	-	1.0	2.5	V	I _{FT} =10mA, I _T =1000mA	
Leakage Current	I _{DRM}	-	10	100	μA	I _{FT} =0mA, V _{DRM} =600V	
Holding Current	I _H	-	5	25	mA	I _{FT} =10mA	
Critical Rate of Rise (dV//dt)	dV _D /dt	-	-	400	V/µS	V _{DM} =67% 600V	
Isolation Specifications							
Isolation Voltage		3750	-	-	V		
(-H Option)	V _{ISO}	5000	-	-	V _{RMS}	RH ≤ 50%, t=1min	
Input-Output Resistance	R _{I-O}	-	10 ¹²	-	Ω	$V_{I-O} = 500 V_{DC}$	

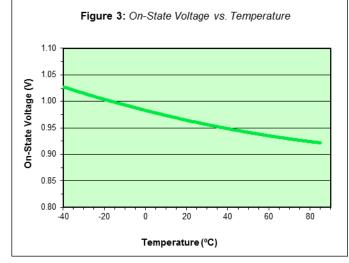
Notes:

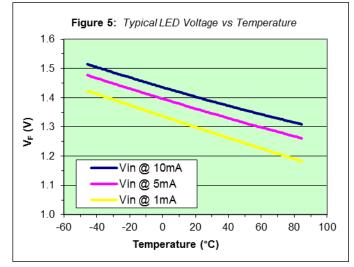
1) I_{FT} = 20mA recommended for inductive loads

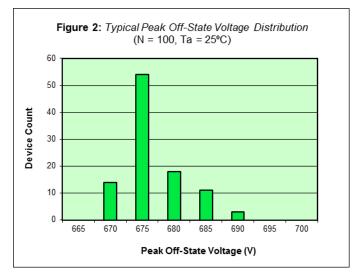


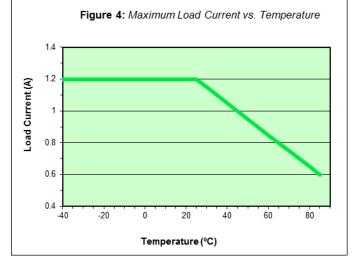
STR8063 Performance & Characteristics Plots, T_A = 25°C (unless otherwise specified)













STR8063 Solder 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:

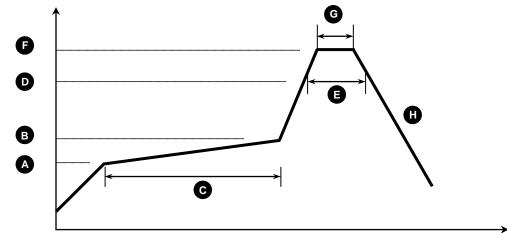


Figure 1

Process Description		Parameter		
Α	Preheat Start Temperature (°C)	150°C		
В	Preheat Finish Temperature (°C)	180ºC		
С	Preheat Time (s)	90 - 120s		
D	Melting Temperature (°C)	230°C		
Ε	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)	<6ºC/s		

(2) Wave Solder:

Maximum Temperature:	260°C (at terminal)
Maximum Time:	10s
Pre-heating:	100 - 150ºC (30 - 90s)
Single Occurrence	

(3) Hand Solder:

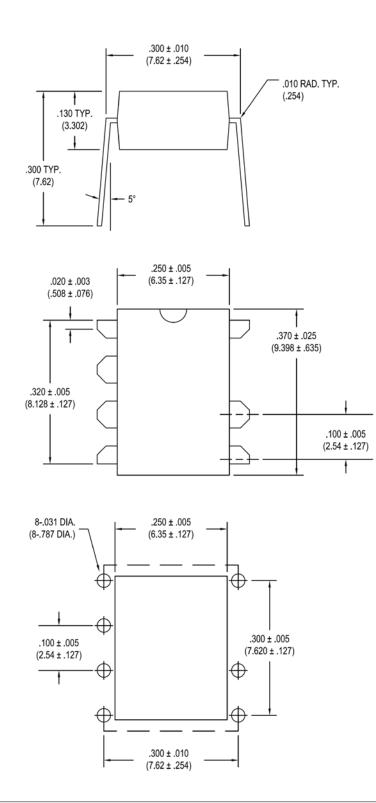
Maximum Temperature:	350°C	(at tip of soldering iron)
Maximum Time:	3s	
Single Occurrence		



STR8063 Package Dimensions

8 PIN DIP Package

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

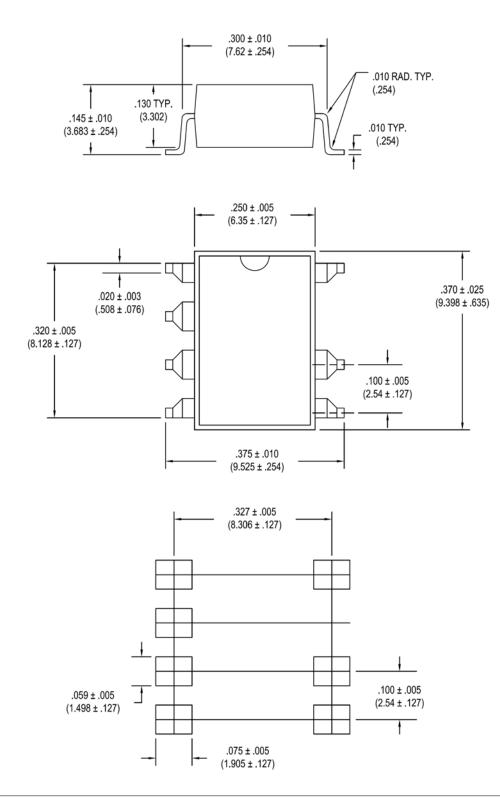




STR8063 Package Dimensions

8 PIN SMD Surface Mount Package (-S)

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

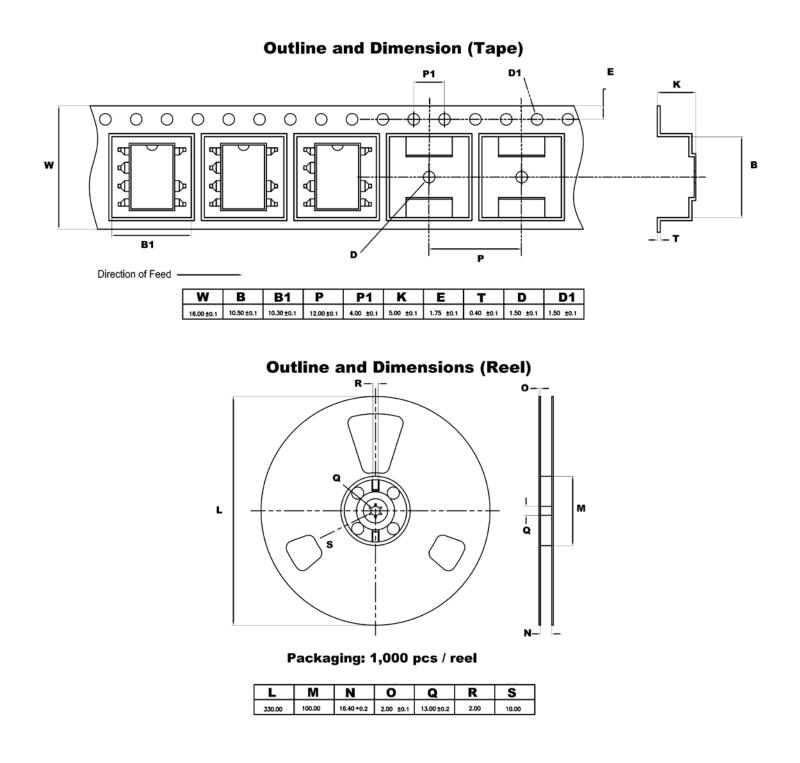




STR8063 Package Dimensions

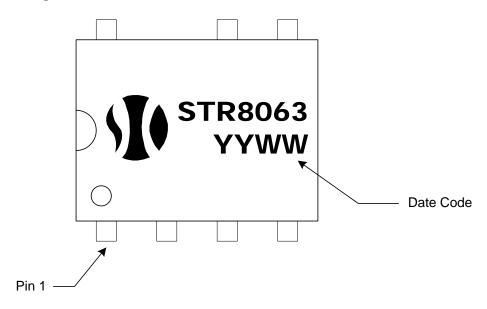
8 PIN SMD Tape & Reel (-STR)

Note: All dimensions in millimeters





STR8063 Package Marking



STR8063 Package Weights

Device	Single Unit	Full Tube (50pcs)	Full Pouch (10 tubes)	Full Reel (1000pcs)
STR8063-(H)	0.54	42	420	-
STR8063-(H)S	0.53	44	440	-
STR8063-(H)STR	0.53	-	-	950

Note: All weights above are in GRAMS, and include packaging materials where applicable

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