SOLID STATE OPTRONICS

M251



1 Form A
Solid State Relay

DESCRIPTION

The M251 is a bi-directional, single-pole, single-throw, normally open solid-state relay. It offers low on-resistance and high load current ratings in an ultra miniature 4 pin SOP package. The relay consists of an AlGaAs infrared LED, optically coupled to an IC, which in turn drives two back to back enhancement type DMOS transistors.

FEATURES

- Low on-resistance (1 ohm MAX)
- High Load Current Rating (400mA continuous MAX)
- Low input current (2.5mA MAX)
- High input-to-output isolation (1500Vrms)
- Ultra Miniature 4 pin SOP package
- Long life / high reliability

APPLICATIONS

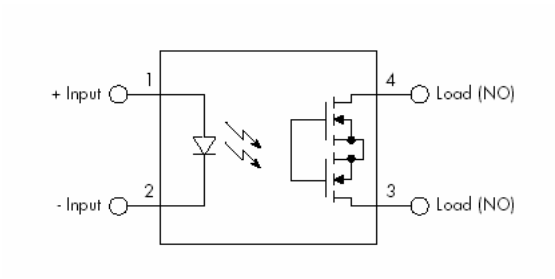
- Multiplexers
- Meter Reading Systems
- Data Acquisition
- Medical Equipment
- Battery Monitoring
- Home Safety/ Security Systems

OPTIONS/SUFFIXES*

- -TR Tape and Reel (2,000 pcs / 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		125
Continuous Forward Current	mA			50
Peak Forward Current (1us)	A			1
Reverse Input Control Voltage	V			5
Output Power Dissipation	mW			400

*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 File # E209132

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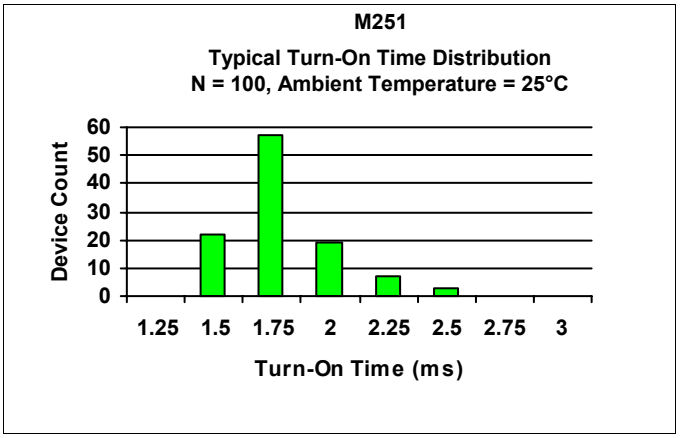
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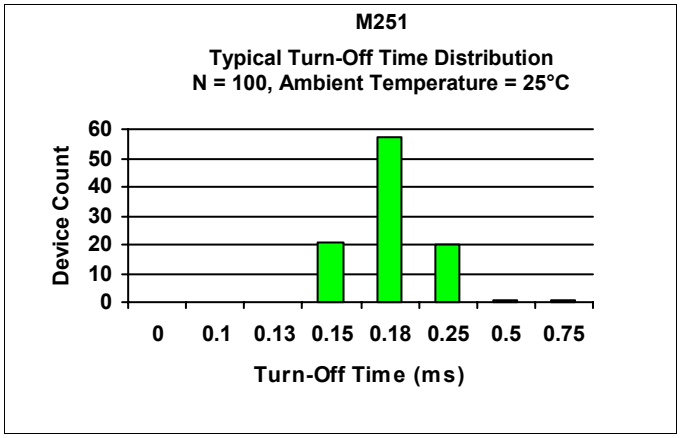
ELECTRICAL CHARACTERISTICS - 25°C

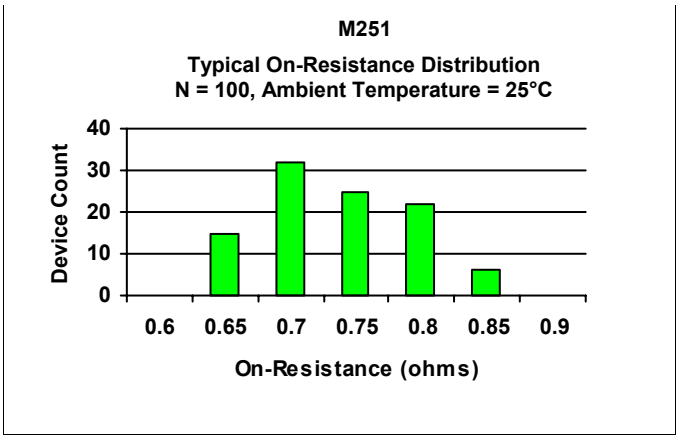
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Turn-On Current	m A		2.5	5	Io = 400mA
Turn-Off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	60			Io = 1uA
Continuous Load Current	m A			400	If = 10mA
On-Resistance	Ω		0.7	1	Io = 400mA, If = 10mA
Leakage Current	μ A		0.2	1	Vo = 60V
Output Capacitance	p F		125	200	Vo = 25V, f = 1.0MHz
Offset Voltage	m V			0.2	If = 5mA
COUPLED SPECIFICATIONS					
Isolation Voltage	V	1500			T = 1 minute
Turn-On Time	m s		2	5	If = 5mA, Io = 400mA
Turn-Off Time	m s		0.8	2	If = 0mA, Io = 400mA
Isolation Resistance	G Ω	100			
Coupled Capacitance	p F		2		
Contact Transient Ratio	V / μ s	2000	7000		dV = 50V

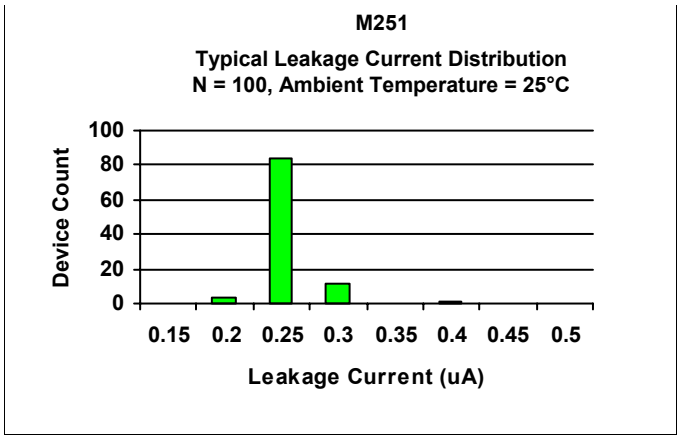
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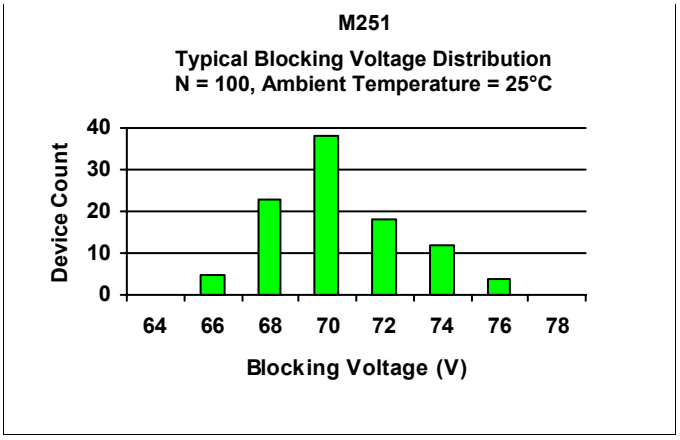
PERFORMANCE DATA

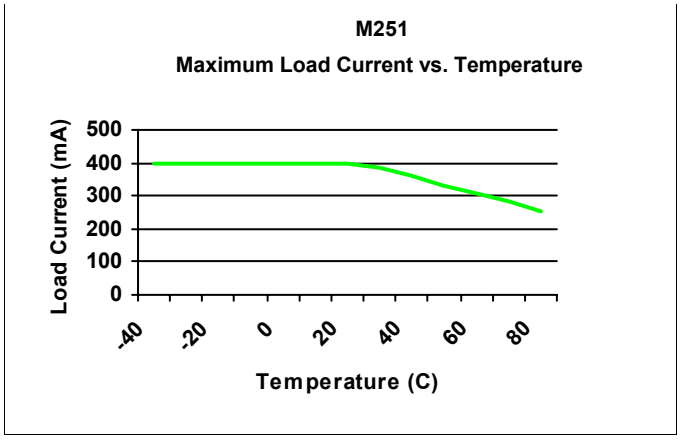






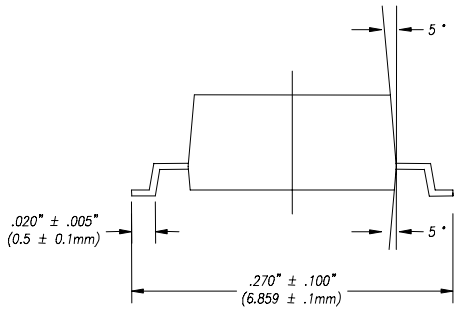




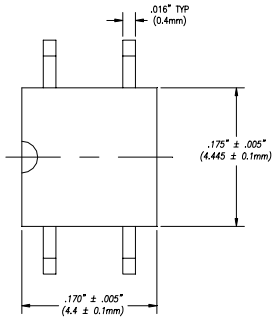


MECHANICAL DIMENSIONS

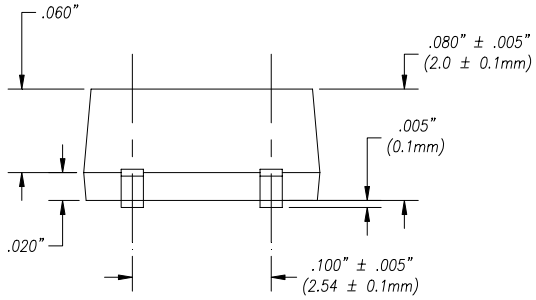
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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