



1 Form A
Solid State Relay



DESCRIPTION

The M250 is a bi-directional, single-pole, single-throw, normally open multipurpose solid-state relay in a 4-pin miniature small outline package. It is designed to replace electromechanical and reed relays in special applications that call for very fast switching rates. The relay consists of an integrated circuit that drives two special source-to-source enhancement type DMOS transistors with extremely low output capacitance and leakage current. The IC is optically coupled to a light emitting diode which controls its switching. The design of the circuit makes it ideal for switching high frequency signals.

FEATURES

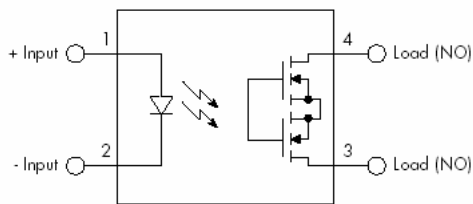
- Fast turn-on (50us TYP)
- Low output capacitance
- Ultra miniature 4-pin small outline package
- Low input control power consumption
- 35mA maximum continuous load current
- 300 ohms maximum on-resistance
- High input-to-output isolation (1.5kV MIN)
- Long life/high reliability

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



APPLICATIONS

- Multiplexers
- Meter reading systems
- Data Acquisition
- Medical equipment
- Battery monitoring
- Home/Safety security systems

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.

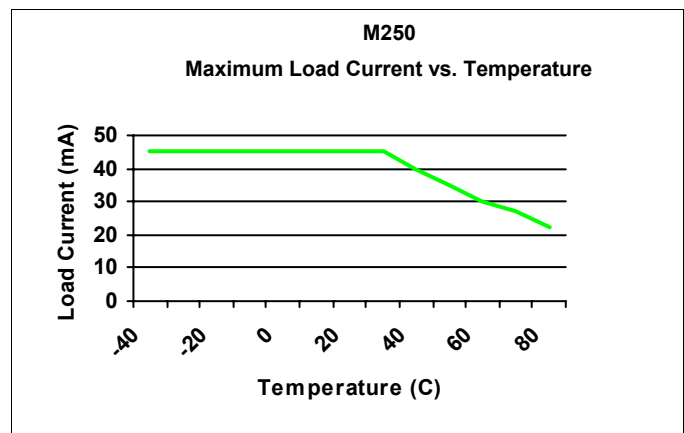
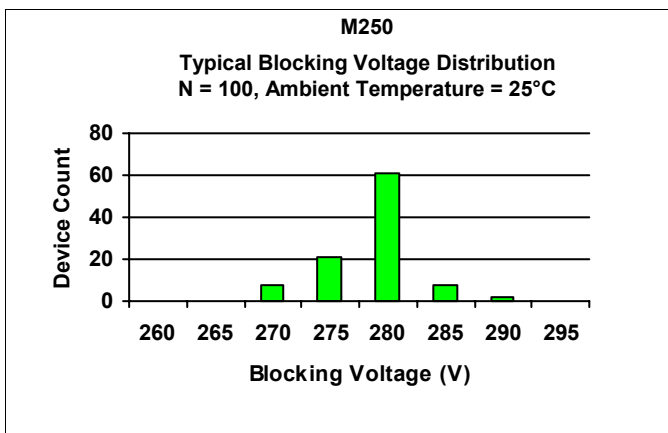
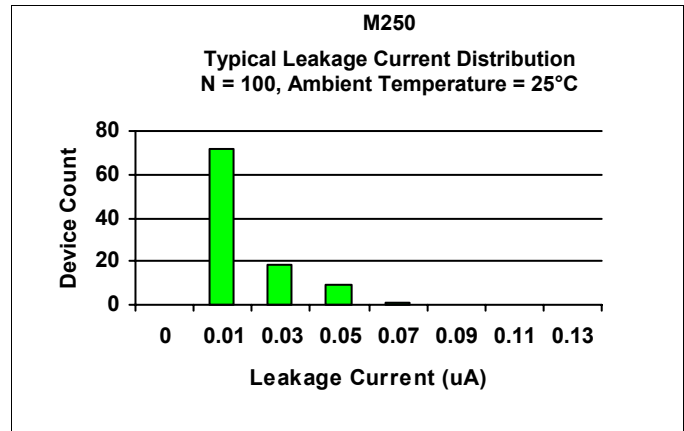
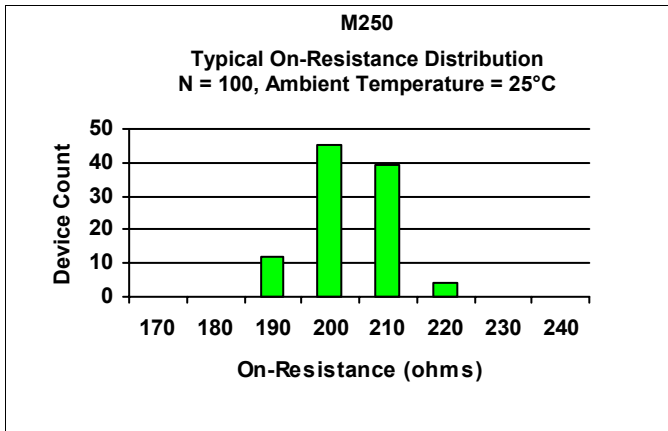
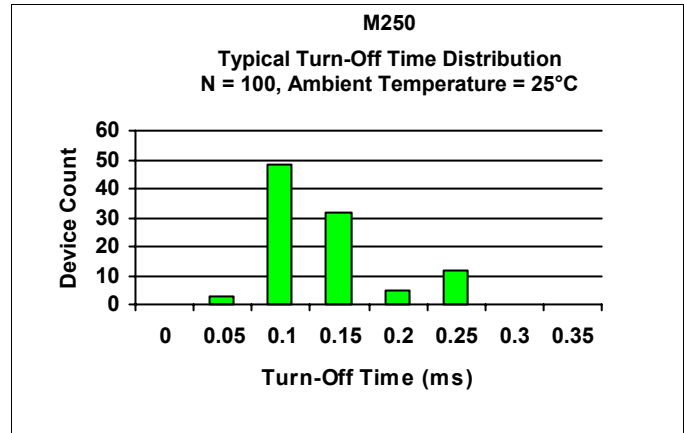
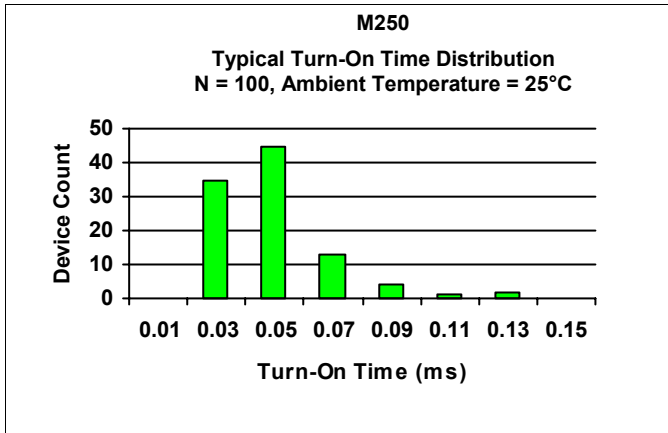
APPROVALS

- UL / C-UL File # E201932

ELECTRICAL CHARACTERISTICS - 25°C

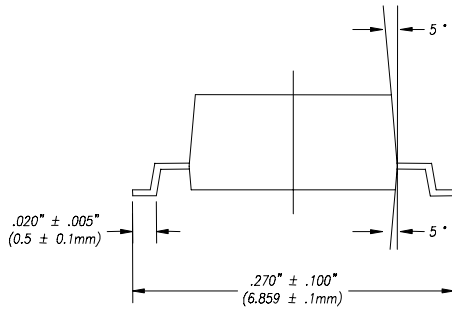
PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	If = 10mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Turn-On Current	m A		2.5	5	Io = 35mA
Turn-Off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	250			Io = 1uA
Continuous Load Current	m A			35	If = 5mA
On-Resistance	Ω		225	300	Io = 35mA
Leakage Current	n A		10	100	Vo = 250V
Output Capacitance	p F		1.5	3	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	μ s		50	500	If = 5mA, Io = 35mA
Turn-Off Time	μ s		150	500	If = 0mA, Io = 35mA
Isolation Resistance	G Ω	100			
Coupled Capacitance	p F		3		
Contact Transient Ratio	V / μ s	2000	7000		dV = 50V

PERFORMANCE DATA

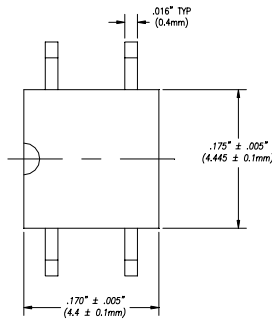


MECHANICAL DIMENSIONS

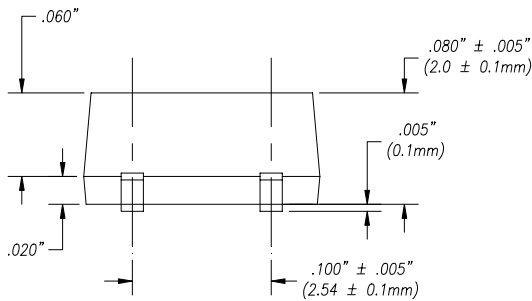
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

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