SOLID STATE OPTRONICS

TDM3023

Random Switching
Triac Driver

RoHS compliant

DESCRIPTION

The TDM3023 consists of a GaAs LED optically coupled to a Random Phase photo-sensitive Triac Driver chip. The miniature 4 pin SOP package provides high input-to-output isolation and drives high-powered triacs while using very little board space. Typical uses include interfacing logic level control signals to equipment powered from 110Vac and 220Vac lines

FEATURES

- Random_Phase swtiching
- 400V blocking voltage
- High input-to-output isolation (2.5kV MIN)
- 5mA turn-on (trigger) current
- Miniature 4 pin SOP package
- High reliability

APPLICATIONS

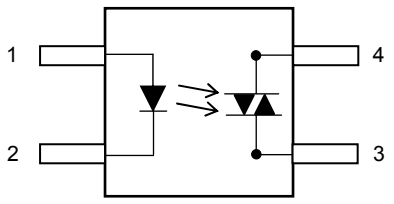
- White Goods
- Motor Controls
- Dimmers
- Solid state relays
- High power triacs

OPTIONS/SUFFIXES*

- -TR Tape & Reel Option (2,000 pcs / reel)

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

SCHEMATIC DIAGRAM



1. Anode
2. Cathode
3. Main Terminal
4. Main Terminal

ABSOLUTE MAXIMUM RATINGS*

PARAMETER	UNIT	MIN	TYP	MAX
Storage Temperature	ºC	-55		125
Operating Temperature	ºC	-40		85
Continuous Input Current	mA			40
Transient Input Current	mA			400
Reverse Input Control Voltage	V	6		
Output Power Dissipation	mW			100

*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

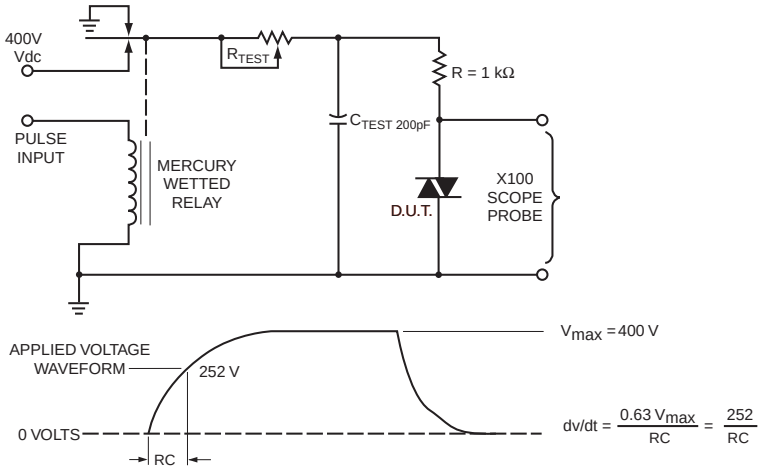
- UL / C-UL Approved, File # E201932
- VDE Approved, Lic # 40011225

ELECTRICAL CHARACTERISTICS - 25°C

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Votlage	V		1.2	1.5	If = 5mA
LED Reverse Voltage	V	6	12		Ir = 10uA
Turn-on (Trigger) Current (See Note 1)	m A			5	Io = 100mA
Turn-off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	400			Io - 1uA
Continuous Load Current	m A			70	Iin = 5mA
Holding Current	μ A		250		
Leakage Current	μ A			1	Vo = 600V
On-State Voltage	V		2	3	Iin = 5mA
Critical Rate of Rise (dV/dt)	V / μ s	1000	1500		
COUPLED SPECIFICATIONS					
Isolation Voltage	V	2500			T = 1 minute
Coupled Capacitance	p F		2		

Note 1: Resistive load. For inductive loads, higher drive current is recommended

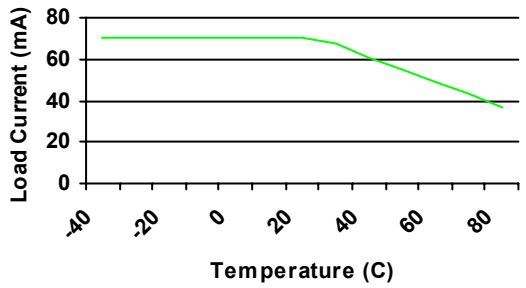
STATIC dV/dt TEST CIRCUIT



PERFORMANCE DATA

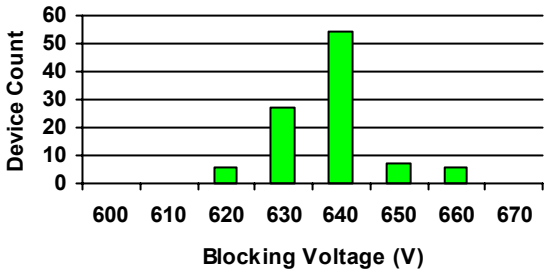
TDM3023

Maximum Load Current vs. Temperature

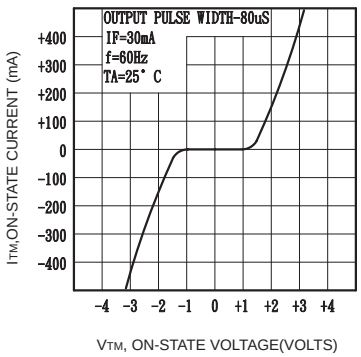


TDM3023

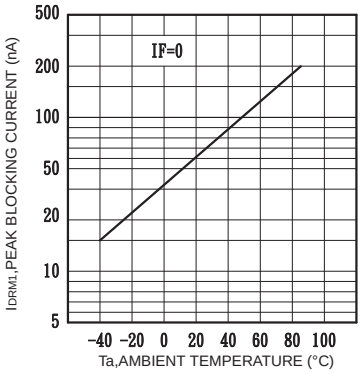
Typical Blocking Voltage Distribution
N = 100, Ambient Temperature = 25°C



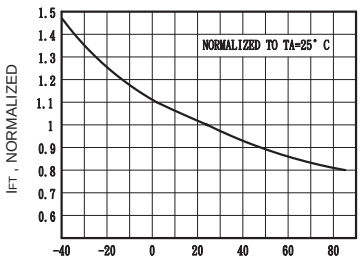
TDM3023: On-State Characteristics



TDM3023: Leakage with LED Off vs. Temperature

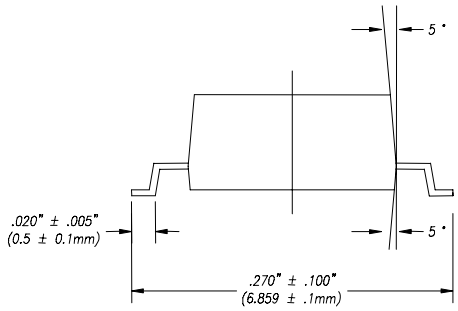


TDM3023: Trigger Current vs. Temperature

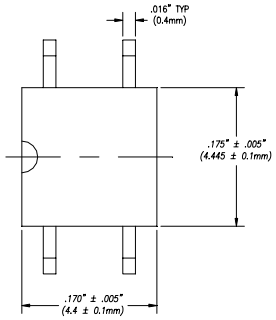


MECHANICAL DIMENSIONS

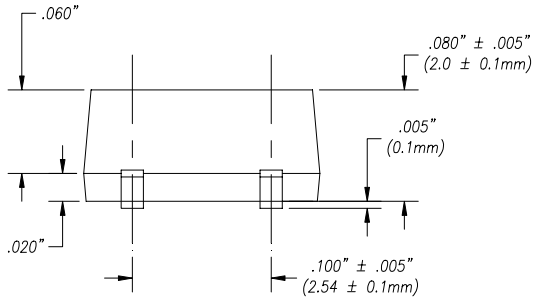
4 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



BACK VIEW

DISCLAIMER

Solid State Optronics (SSO) makes no warranties or representations with regards to the completeness and accuracy of this document. SSO reserves the right to make changes to product description, specifications at any time without further notice.
SSO shall not assume any liability arising out of the application or use of any product or circuit described herein. Neither circuit patent licenses nor indemnity are expressed or implied.
Except as specified in SSO's Standard Terms & Conditions, SSO disclaims liability for consequential or other damage, and we make no other warranty, expressed or implied, including merchantability and fitness for particular use.

LIFE SUPPORT POLICY

SSO does not authorize use of its devices in life support applications wherein failure or malfunction of a device may lead to personal injury or death. Users of SSO devices in life support applications assume all risks of such use and agree to indemnify SSO against any and all damages resulting from such use. Life support devices are defined as devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when used properly in accordance with instructions for use can be reasonably expected to result in significant injury to the user, or (d) a critical component in any component of a life support device or system whose failure can be reasonably expected to cause failure of the life support device or system, or to affect its safety or effectiveness.