PRODUCT NAME : Q6015L5 15A 600V TRI AC

PRICE : Rs 35.00
SKU : RM2005

DESCRIPTION

Teccor® brand Thyristors
15 Amp Standard & 16 Amp Alternistor (High Commutation) Triacs

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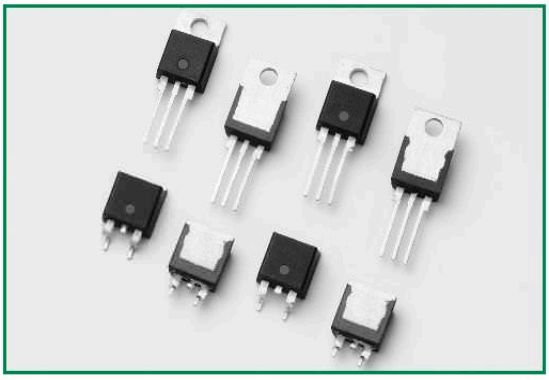
RoHS Qxx15xx & Qxx16xHx Series



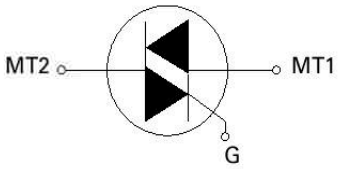
Agency Approval

Agency	Agency File Number
	L Package : E71639

Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	15 & 16	A
V_{DRM}/V_{RRM}	400 to 1000	V
$I_{GT (Q1)}$	10 to 80	mA

Schematic Symbol



Description

15 Amp and 16 Amp bi-directional solid state switch series is designed for AC switching and phase control applications such as motor speed and temperature modulation controls, lighting controls, and static switching relays.

Standard type devices normally operate in Quadrants I & III triggered from AC line.

Alternistor type devices only operate in quadrants I, II, & III and are used in circuits requiring high dv/dt capability.

Features & Benefits

- RoHS Compliant
- Glass – passivated junctions
- Voltage capability up to 1000 V
- Surge capability up to 200 A
- Electrically isolated "L-Package" is UL recognized for 2500Vrms
- Solid-state switching eliminates arcing or contact bounce that create voltage transients
- No contacts to wear out from reaction of switching events
- Restricted (or limited) RFI generation, depending on activation point in sine wave
- Requires only a small gate activation pulse in each half-cycle

Applications

Excellent for AC switching and phase control applications such as heating, lighting, and motor speed controls.

Typical applications are AC solid-state switches, light dimmers, power tools, lawn care equipment, home/brown goods and white goods appliances.

Alternistor Triacs (no snubber required) are used in applications with extremely inductive loads requiring highest commutation performance.

Internally constructed isolated packages are offered for ease of heat sinking with highest isolation voltage.

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Absolute Maximum Ratings — Standard Triac

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	Qxx15Ly	T_C = 80°C	15	A
		Qxx15Ry Qxx15Ny	T_C = 90°C		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_J initial = 25°C)	f = 50 Hz	t = 20 ms	167	A
		f = 60 Hz	t = 16.7 ms	200	
I^2t	I^2t Value for fusing		t_p = 8.3 ms	166	A^2s
di/dt	Critical rate of rise of on-state current	f = 120 Hz	T_J = 125°C	100	A/µs
I_{GTM}	Peak gate trigger current	$t_p \le 10$ µs $I_{GT} \le I_{GTM}$	T_J = 125°C	2.0	A
$P_{G(AV)}$	Average gate power dissipation		T_J = 125°C	0.5	W
T_{stg}	Storage temperature range			-40 to 150	°C
T_J	Operating junction temperature range			-40 to 125	°C

Note: xx = voltage, y = sensitivity

Absolute Maximum Ratings — Alternistor Triac (3 Quadrants)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)	Qxx16LHy	T_C = 80°C	16	A
		Qxx16RHy Qxx16NHy	T_C = 90°C		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_J initial = 25°C)	f = 50 Hz	t = 20 ms	167	A
		f = 60 Hz	t = 16.7 ms	200	
I^2t	I^2t Value for fusing		t_p = 8.3 ms	166	A^2s
di/dt	Critical rate of rise of on-state current	f = 120 Hz	T_J = 125°C	100	A/µs
I_{GTM}	Peak gate trigger current	$t_p \le 10$ µs; $I_{GT} \le I_{GTM}$	T_J = 125°C	2.0	A
$P_{G(AV)}$	Average gate power dissipation		T_J = 125°C	0.5	W
T_{stg}	Storage temperature range			-40 to 150	°C
T_J	Operating junction temperature range			-40 to 125	°C

Note: xx = voltage, y = sensitivity

Electrical Characteristics (T_J = 25°C, unless otherwise specified) — Standard Triac

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT}	V_D = 12V R_L = 60 Ω	I – II – III	MAX.	50	mA
V_{GT}		I – II – III	MAX.	2.0	V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ T_J = 125°C	I – II – III	MIN.	0.2	V
I_H	I_T = 100mA		MAX.	70	mA
dv/dt	$V_D = V_{DRM}$ Gate Open T_J = 125°C	400V	MIN.	275	V/µs
		600V		225	
		800V		200	
	$V_D = V_{DRM}$ Gate Open T_J = 100°C	1000V		200	
(dv/dt)c	(di/dt)c = 8.1 A/ms T_J = 125°C		MIN.	4	V/µs
t_{gt}	$I_G = 2 \times I_{GT}$ PW = 15µs I_T = 22.6 A(pk)		TYP.	4	µs

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Electrical Characteristics (T_J = 25°C, unless otherwise specified) — Alternistor Triac (3 Quadrants)

Symbol	Test Conditions	Quadrant		Qxx16xH2	Qxx16xH3	Qxx16xH4	Qxx16xH6	Unit
I_{GT}	V_D = 12V R_L = 60 Ω	I – II – III	MAX.	10	20	35	80	mA
V_{GT}		I – II – III	MAX.	1.3				V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ T_J = 125°C	I – II – III	MIN.	0.2				V
I_H	I_T = 100mA		MAX.	15	35	50	70	mA
dv/dt	$V_D = V_{DRM}$ Gate Open T_J = 125°C	400V	MIN.	200	350	475	925	V/µs
		600V		150	250	400	850	
		800V		100	200	350	475	
	$V_D = V_{DRM}$ Gate Open T_J = 100°C	1000V		100	200	300	350	
(dv/dt)c	(di/dt)c = 8.6 A/ms T_J = 125°C		MIN.	2	20	25	30	V/µs
t_{gt}	$I_G = 2 \times I_{GT}$ PW = 15µs I_T = 22.6 A(pk)		TYP.	3	3	3	5	µs

Static Characteristics

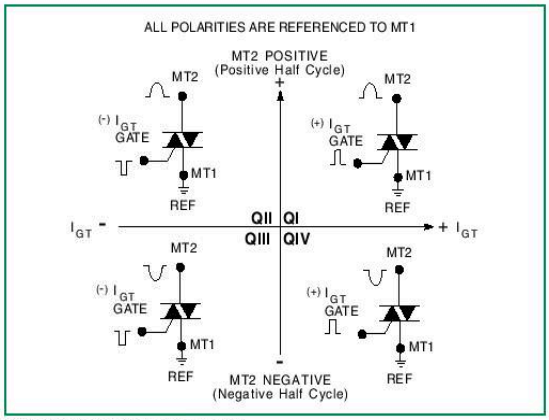
Symbol	Test Conditions				Value	Unit
V_{TM}	15A Device I_T = 21.2A t_p = 380µs 16A Device I_T = 22.6A t_p = 380µs			MAX	1.60	V
I_{DRM} I_{RRM}	$V_D = V_{DRM} / V_{RRM}$	T_J = 25°C	400-1000V	MAX	5	µA
		T_J = 125°C	400-800V		2	mA
		T_J = 100°C	1000V		3	

Thermal Resistances

Symbol	Parameter		Value	Unit
$R_{\theta(J-C)}$	Junction to case (AC)	Qxx15Ry Qxx15Ny Qxx16RHy Qxx16NHy	1.1	°C/W
		Qxx15Ly Qxx16LHy	2.1	
$R_{\theta(J-A)}$	Junction to ambient	Qxx15Ry Qxx16RHy	45	°C/W
		Qxx15Ly Qxx16LHy	50	

Note: xx = voltage; y = sensitivity

Figure 1: Definition of Quadrants



Note: Alternistors will not operate in QIV

Figure 2: Normalized DC Gate Trigger Current for All Quadrants vs. Junction Temperature