PRODUCT NAME : Q6025R6 25A 600V TRI
AC

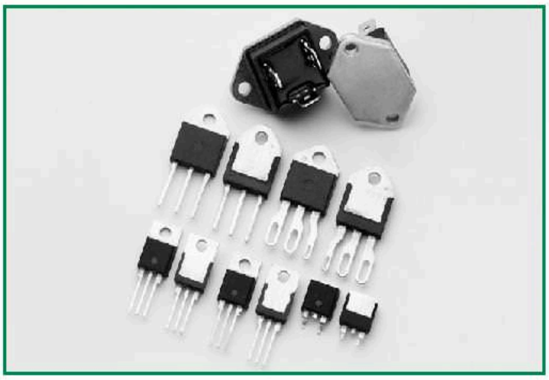
PRICE : Rs 35.00
SKU : RM2006

DESCRIPTION

Littelfuse
Expertise Applied | Answers Delivered

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

Qxx25xx & Qxx25xHx Series



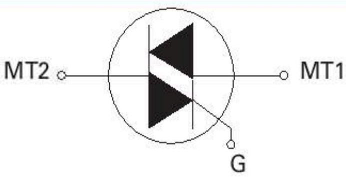
Agency Approval

Agency	Agency File Number
UL	TO-220L, TO-218K, TO-218J & Fastpak Packages: E71639

Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	25	A
V_{DRM}/V_{RRM}	1000	V
I_{GT}	50 to 80	mA

Schematic Symbol



Description

25 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 250 A

Applications

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

Typical applications are AC solid-state switches, industrial power tools, exercise equipment, white goods and commercial 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.

25 A TRIACs

Absolute Maximum Ratings – Standard Triac

Symbol	Parameter	Test Conditions		Value	Unit
$I_{T(RMS)}$	RMS on-state current	Qxx25R5 Qxx25N5	T_C = 85°C	25	A
		Qxx25P5	T_C = 57°C		
I_{TSM}	Peak non-repetitive surge current	Qxx25R5 Qxx25N5	single half cycle; f = 50Hz; T_J (initial) = 25°C	167	A
			single half cycle; f = 60Hz; T_J (initial) = 25°C	200	
		Qxx25P5	single half cycle; f = 50Hz; T_J (initial) = 25°C	220	
			single half cycle; f = 60Hz; T_J (initial) = 25°C	250	
I^2t	I^2t Value for fusing	Qxx25R5 Qxx25N5	t_p = 8.3ms	166	A^2s
		Qxx25P5		260	
di/dt	Critical rate-of-rise of on-state current	f = 60Hz; T_J =125°C		100	A/μs
I_{GTM}	Peak gate current	T_J = 125°C		2	A
$P_{G(AV)}$	Average gate power dissipation	T_J = 125°C		0.5	W
T_{stg}	Storage temperature range			-40 to 125	°C
T_J	Operating junction temperature range	Qxx25R5 Qxx25N5		-40 to 125	°C
		Qxx25P5		-25 to 125	

Absolute Maximum Ratings – Alternistor Triac

Symbol	Parameter	Test Conditions		Value	Unit
$I_{T(RMS)}$	RMS on-state current	Qxx25LH5 Qxx25L6	T_C = 65°C	25	A
		Qxx25K6 Qxx25J6	T_C = 85°C		
		Qxx25RH5 Qxx25NH5 Qxx25R6 Qxx25NH6	T_C = 95°C		
I_{TSM}	Peak non-repetitive surge current	single half cycle; f = 50Hz; T_J (initial) = 25°C		208	A
		single half cycle; f = 60Hz; T_J (initial) = 25°C		250	
I^2t	I^2t Value for fusing	t_p = 8.3ms		260	A^2s
di/dt	Critical rate-of-rise of on-state current	f = 60Hz; T_J =125°C		100	A/μs
I_{GTM}	Peak gate current	T_J = 125°C		2	A
$P_{G(AV)}$	Average gate power dissipation	T_J = 125°C		0.5	W
T_{stg}	Storage temperature range			-40 to 125	°C
T_J	Operating junction temperature range			-40 to 125	°C

Note: xx = voltage

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

Symbol	Test Conditions	Quadrant		Value: Qxx25R5 Qxx25N5	Value: Qxx25P5	Unit
I_{GT}	V_D = 12V; R_L = 60 Ω	I – II – III	MAX.	50		mA
		IV	TYP.	120		
V_{GT}		I – II – III	MAX.	1.3		V
		IV	TYP.	2.5		
V_{GD}	$V_D = V_{DRM}$; R_L = 3.3 kΩ ; T_J = 125°C	ALL	MIN.	0.2		V
I_H	I_T = 400mA (initial)		MAX.	100	50	mA
dv/dt	$V_D = V_{DRM}$; Gate Open; T_J = 125°C	400V	MIN.	275	—	V/µs
		600V		225	475	
		800V		200	400	
	$V_D = V_{DRM}$; Gate Open; T_J = 100°C	1000V		200	—	
(dv/dt)c	(di/dt)c = 13.3 A/ms; T_J = 125°C		MIN.	5		V/µs
t_{gt}	I_G = 2 x I_{GT}; PW = 15µs; I_T = 35.4 A		TYP.	4	3	µs

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

Symbol	Test Conditions	Quadrant		Value: Qxx25RH5 Qxx25LH5 Qxx25NH5	Value: Qxx25R6 Qxx25L6 Qxx25NH6 Qxx25K6 Qxx25J6	Unit
I_{GT}	V_D = 12V; R_L = 60 Ω	I – II – III	MAX.	50	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 = 400mA (initial)		MAX.	50	100	mA
dv/dt	$V_D = V_{DRM}$; Gate Open; T_J = 125°C	400V	MIN.	575	600	V/µs
		600V		500	600	
		800V		400	475	
	$V_D = V_{DRM}$; Gate Open; T_J = 100°C	1000V		—	400	
(dv/dt)c	(di/dt)c = 13.3 A/ms; T_J = 125°C		MIN.	20	30	V/µs
t_{gt}	I_G = 2 x I_{GT}; PW = 15µs; I_T = 35.4 A		TYP.	3	5	µs

Static Characteristics

Symbol	Test Conditions				Value: Qxx25R5 Qxx25N5 Qxx25xH5 Qxx25x6 Qxx25NH6	Value: Qxx25P5	Unit
V_{TM}	I_T = 35.4A; t_p = 380 µs			MAX.	1.8	1.4	V
I_{DRM} / I_{RRM}	V_{DRM} / V_{RRM}	T_J = 25°C	600 – 800V	MAX.	10	100	µA
			1000V		20	—	
		T_J = 100°C	600 – 800V		500	—	
			1000V		1000	—	
		T_J = 125°C	600 – 800V		2000	5000	

Note: xx = voltage, x = package