



PRODUCT NAME : L4004F51 4A 400V TRI
AC

PRICE : Rs 35.00

SKU : RM1995



DESCRIPTION

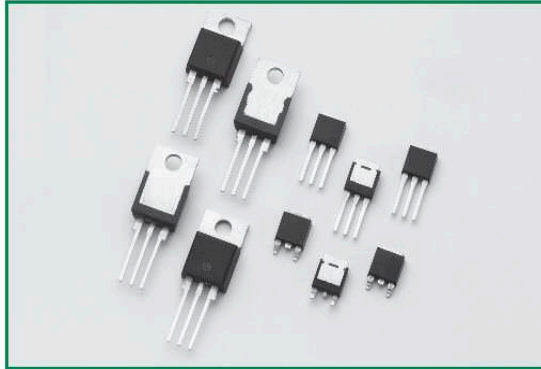
Features

- Gate Turn-On Voltage (Vgt): 1.4V
- Peak Off-State Voltage(Vdrm): 500V
- On-State Current (It): 12.0A
- Gate Current (Igt): 2mA
- Typical Voltage Change over Time (dV/dT): 130V/μs



Teccor® brand Thyristors 4 Amp Sensitive & Standard Triacs

RoHS Lxx04xx & Qxx04xx Series



Description

4 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.

Sensitive type devices guarantee gate control in Quadrants I & IV needed for digital control circuitry.

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

Features & Benefits

- RoHS Compliant
- Glass – passivated junctions
- Voltage capability up to 1000 V
- Surge capability up to 55 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 of sine wave
- Requires only a small gate activation pulse in each half-cycle

Applications

Typical applications are AC solid-state switches, power tools, home/brown goods and white goods appliances.

Sensitive gate Triacs can be directly driven by microprocessor or popular opto-couplers/isolators.

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

4.0A TRIACS

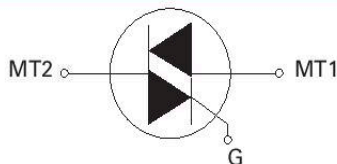
Agency Approval

Agency	Agency File Number
	L Package : E71639

Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	400 to 1000	V
$I_{GT(OT)}$	3 to 25	mA

Schematic Symbol



Absolute Maximum Ratings — Sensitive Triacs (4 Quadrants)

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	RMS on-state current (full sine wave)	Lxx04Ly / Lxx04Dy $T_c = 85^\circ\text{C}$	4	A
		Lxx04Ry / Lxx04Vy $T_c = 75^\circ\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_J initial = 25°C)	f = 50 Hz t = 20 ms	33	A
		f = 60 Hz t = 16.7 ms		
I^2t	I^2t Value for fusing	$t_p = 8.3$ ms	6.6	A ² s
di/dt	Critical rate of rise of on-state current ($I_G = 50\text{mA}$ with $\leq 0.1\mu\text{s}$ rise time)	f = 120 Hz $T_J = 110^\circ\text{C}$	50	A/ μs
$I_{GT(M)}$	Peak gate trigger current	$t_p \leq 10\mu\text{s}$ $T_J = 110^\circ\text{C}$	1.2	A
$P_{G(AV)}$	Average gate power dissipation	$T_J = 110^\circ\text{C}$	0.3	W
T_{stg}	Storage temperature range		-40 to 150	$^\circ\text{C}$
T_J	Operating junction temperature range		-40 to 110	$^\circ\text{C}$

Note: xx = voltage, y = sensitivity

Teccor® brand Thyristors
 4 Amp Sensitive & Standard Triacs



Absolute Maximum Ratings — Standard Triacs

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	RMS on-state current (full sine wave)	Qxx04Ly / Qxx04Dy $T_c = 95^\circ\text{C}$	4	A
		Qxx04Ry / Qxx04Vy $T_c = 85^\circ\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_J initial = 25°C)	f = 50 Hz t = 20 ms	46	A
		f = 60 Hz t = 16.7 ms	55	
I^2t	I^2t Value for fusing	$t_p = 8.3$ ms	12.5	A^2s
di/dt	Critical rate of rise of on-state current ($I_G = 50\text{mA}$ with $\leq 0.1\mu\text{s}$ rise time)	f = 120 Hz $T_J = 125^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GTM}	Peak gate trigger current	$t_p \leq 10\mu\text{s}; I_{GT} \leq I_{GTM}$ $T_J = 125^\circ\text{C}$	1.2	A
$P_{G(AV)}$	Average gate power dissipation	$T_J = 125^\circ\text{C}$	0.3	W
T_{stg}	Storage temperature range		-40 to 150	$^\circ\text{C}$
T_J	Operating junction temperature range		-40 to 125	$^\circ\text{C}$

Note: xx = voltage, y = sensitivity

Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified) — Sensitive Triac (4 Quadrants)

Symbol	Test Conditions	Quadrant	Lxx04x3	Lxx04x5	Lxx04x6	Lxx04x8	Unit
I_{GT}	$V_D = 12\text{V}$ $R_L = 60\ \Omega$	I – II – III	3	5	5	10	mA
		IV	3	5	10	20	
V_{GT}		ALL	1.3				V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\ \text{k}\Omega$ $T_J = 110^\circ\text{C}$	ALL	0.2				V
I_H	$I_T = 100\text{mA}$	MAX.	5	10	10	15	mA
dv/dt	$V_D = V_{DRM}$ Gate Open $T_J = 100^\circ\text{C}$	400V	25	25	30	35	$\text{V}/\mu\text{s}$
		600V	15	15	20	25	
(dv/dt)c	(di/dt)c = 2.16 A/ms $T_J = 110^\circ\text{C}$	TYP.	0.5	1	1	1	$\text{V}/\mu\text{s}$
t_{gt}	$I_G = 2 \times I_{GT}$ PW = 15 μs $I_T = 5.6\ \text{A(pk)}$	TYP.	2.8	3.0	3.0	3.2	μs

Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified) — Standard Triac

Symbol	Test Conditions	Quadrant	Oxx04x3	Oxx04x4	Unit
I_{GT}	$V_D = 12\text{V}$ $R_L = 60\ \Omega$	I – II – III	10	25	mA
		IV	25	50	
V_{GT}		I – II – III	1.3	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\ \text{k}\Omega$ $T_J = 125^\circ\text{C}$	ALL	0.2	0.2	V
I_H	$I_T = 200\text{mA}$	MAX.	20	30	mA
dv/dt	$V_D = V_{DRM}$ Gate Open $T_J = 125^\circ\text{C}$	400V	40	75	$\text{V}/\mu\text{s}$
		600V	30	50	
		800V		40	
	$V_D = V_{DRM}$ Gate Open $T_J = 100^\circ\text{C}$	1000V		50	
(dv/dt)c	(di/dt)c = 2.16 A/ms $T_J = 125^\circ\text{C}$	TYP.	2	2	$\text{V}/\mu\text{s}$
t_{gt}	$I_G = 2 \times I_{GT}$ PW = 15 μs $I_T = 5.6\ \text{A(pk)}$	TYP.	2.5	3.0	μs

Note: xx = voltage, x = package



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Static Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions		Value	Unit		
V_{TM}	$I_{TM} = 5.6\text{A}$ $t_p = 380\ \mu\text{s}$	MAX.	1.60	V		
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	MAX.	Lxx04xy	$T_J = 25^\circ\text{C}$ 400-600V	5	μA
				$T_J = 110^\circ\text{C}$ 400-600V	200	μA
			Qxx04xy	$T_J = 25^\circ\text{C}$ 400-1000V	10	μA
				$T_J = 125^\circ\text{C}$ 400-800V	2	mA
				$T_J = 100^\circ\text{C}$ 1000V	3	

Thermal Resistances

Symbol	Parameter	Value	Unit
$R_{\theta(J-C)}$	Junction to case (AC)	L/Qxx04Dy	3.5
		L/Qxx04Ly	3.6
		L/Qxx04Ry	3.6
		L/Qxx04Vy	6.0
$R_{\theta(J-A)}$	Junction to ambient	L/Qxx04Ly	50
		L/Qxx04Ry	45
		L/Qxx04Vy	70

Note: xx = voltage, x = package, y = sensitivity

4.0A TRIACS

Figure 1: Definition of Quadrants

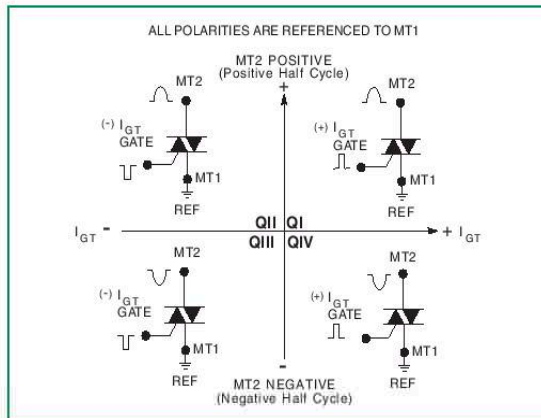


Figure 2: Normalized DC Gate Trigger Current for All Quadrants vs. Junction Temperature

