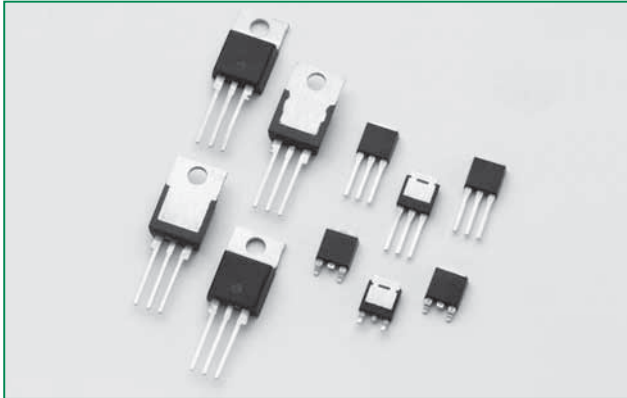


RoHS **Lxx04xx & Qxx04xx Series**



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

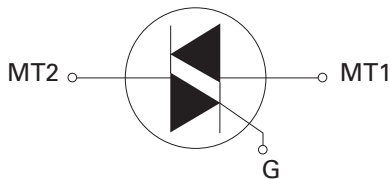
Agency Approval

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
$I_{GT(Q1)}$	3 to 25	mA

Schematic Symbol



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.

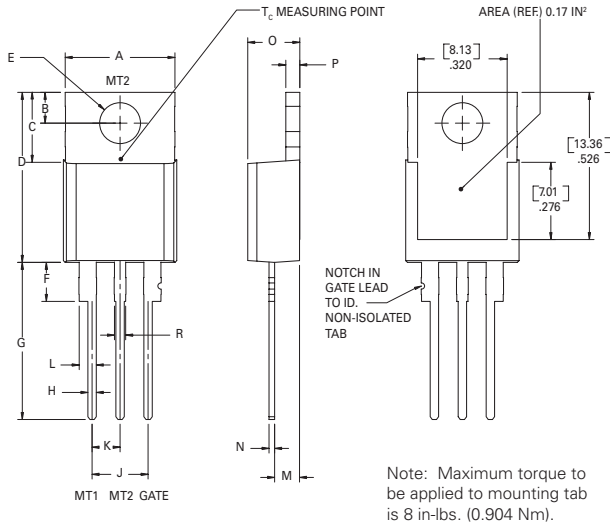
Internally constructed isolated packages are offered for ease of heat sinking with highest isolation voltage.

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	40	
I^2t	I^2t Value for fusing	$t_p = 8.3$ ms	6.6	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 $T_j = 110^\circ\text{C}$	50	$\text{A}/\mu\text{s}$
I_{GTM}	Peak gate trigger current	$t_p \leq 10$ μs $T_j = 110^\circ\text{C}$	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

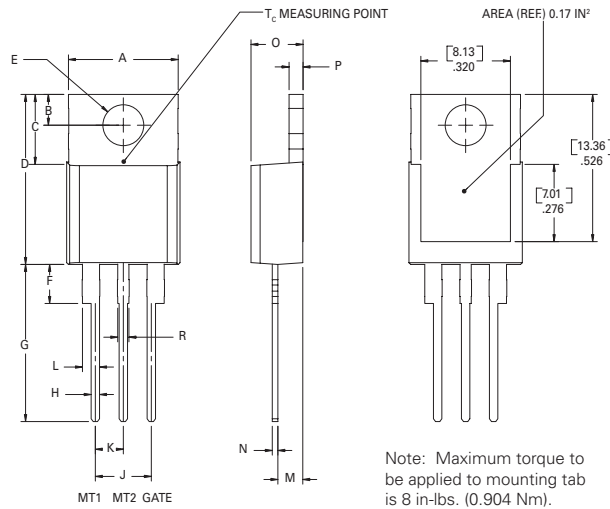
Dimensions – TO-220AB (R-Package) – Non-Isolated Mounting Tab Common with Center Lead



Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.380	0.420	9.65	10.67
B	0.105	0.115	2.67	2.92
C	0.230	0.250	5.84	6.35
D	0.590	0.620	14.99	15.75
E	0.142	0.147	3.61	3.73
F	0.110	0.130	2.79	3.30
G	0.540	0.575	13.72	14.61
H	0.025	0.035	0.64	0.89
J	0.195	0.205	4.95	5.21
K	0.095	0.105	2.41	2.67
L	0.060	0.075	1.52	1.91
M	0.085	0.095	2.16	2.41
N	0.018	0.024	0.46	0.61
O	0.178	0.188	4.52	4.78
P	0.045	0.060	1.14	1.52
R	0.038	0.048	0.97	1.22

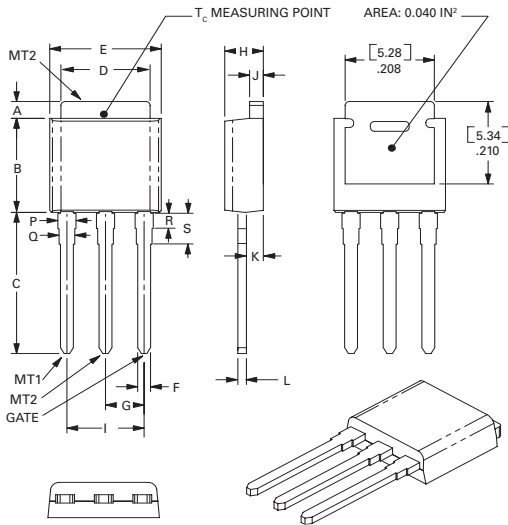
4.0A TRIACS

Dimensions – TO-220AB (L-Package) – Isolated Mounting Tab



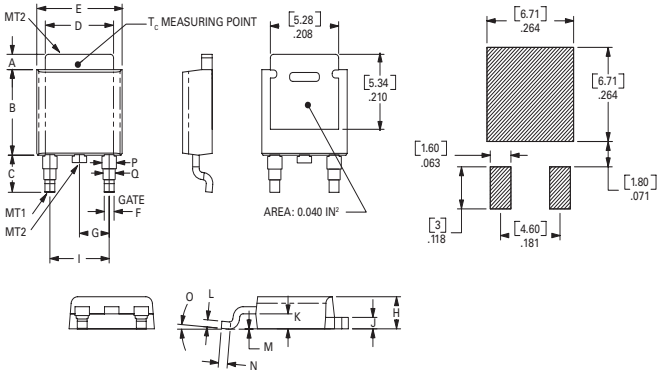
Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.380	0.420	9.65	10.67
B	0.105	0.115	2.67	2.92
C	0.230	0.250	5.84	6.35
D	0.590	0.620	14.99	15.75
E	0.142	0.147	3.61	3.73
F	0.110	0.130	2.79	3.30
G	0.540	0.575	13.72	14.61
H	0.025	0.035	0.64	0.89
J	0.195	0.205	4.95	5.21
K	0.095	0.105	2.41	2.67
L	0.060	0.075	1.52	1.91
M	0.085	0.095	2.16	2.41
N	0.018	0.024	0.46	0.61
O	0.178	0.188	4.52	4.78
P	0.045	0.060	1.14	1.52
R	0.038	0.048	0.97	1.22

Dimensions — TO-251AA (V-Package) — V-PAK Through Hole



Dimension	Inches			Millimeters		
	Min	Typ	Max	Min	Typ	Max
A	0.040	0.044	0.050	1.02	1.11	1.27
B	0.235	0.242	0.245	5.97	6.15	6.22
C	0.350	0.361	0.375	8.89	9.18	9.53
D	0.205	0.208	0.213	5.21	5.29	5.41
E	0.255	0.262	0.265	6.48	6.66	6.73
F	0.027	0.031	0.033	0.69	0.80	0.84
G	0.087	0.090	0.093	2.21	2.28	2.36
H	0.085	0.092	0.095	2.16	2.34	2.41
I	0.176	0.180	0.184	4.47	4.57	4.67
J	0.018	0.020	0.023	0.46	0.51	0.58
K	0.038	0.040	0.044	0.97	1.01	1.12
L	0.018	0.020	0.023	0.46	0.52	0.58
P	0.042	0.047	0.052	1.06	1.20	1.32
Q	0.034	0.039	0.044	0.86	1.00	1.11
R	0.034	0.039	0.044	0.86	1.00	1.11
S	0.074	0.079	0.084	1.86	2.00	2.11

Dimensions — TO-252AA (D-Package) — D-PAK Surface Mount



Dimension	Inches			Millimeters		
	Min	Typ	Max	Min	Typ	Max
A	0.040	0.043	0.050	1.02	1.09	1.27
B	0.235	0.243	0.245	5.97	6.16	6.22
C	0.106	0.108	0.113	2.69	2.74	2.87
D	0.205	0.208	0.213	5.21	5.29	5.41
E	0.255	0.262	0.265	6.48	6.65	6.73
F	0.027	0.031	0.033	0.69	0.80	0.84
G	0.087	0.090	0.093	2.21	2.28	2.36
H	0.085	0.092	0.095	2.16	2.33	2.41
I	0.176	0.179	0.184	4.47	4.55	4.67
J	0.018	0.020	0.023	0.46	0.51	0.58
K	0.038	0.040	0.044	0.97	1.02	1.12
L	0.018	0.020	0.023	0.46	0.51	0.58
M	0.000	0.000	0.004	0.00	0.00	0.10
N	0.021	0.026	0.027	0.53	0.67	0.69
O	0°	0°	5°	0°	0°	5°
P	0.042	0.047	0.052	1.06	1.20	1.32
Q	0.034	0.039	0.044	0.86	1.00	1.11

Product Selector

Part Number	Voltage				Gate Sensitivity Quadrants		Type	Package
	400V	600V	800V	1000V	I – II – III	IV		
Lxx04L3	X	X			3 mA	3 mA	Sensitive Triac	TO-220L
Lxx04D3	X	X			3 mA	3 mA	Sensitive Triac	TO-252 D-PAK
Lxx04R3	X	X			3mA	3mA	Sensitive Triac	TO-220R
Lxx04V3	X	X			3 mA	3 mA	Sensitive Triac	TO-251 V-PAK
Lxx04L5	X	X			5 mA	5 mA	Sensitive Triac	TO-220L
Lxx04D5	X	X			5 mA	5 mA	Sensitive Triac	TO-252 D-PAK
Lxx04R5	X	X			5mA	5mA	Sensitive Triac	TO-220R
Lxx04V5	X	X			5 mA	5 mA	Sensitive Triac	TO-251 V-PAK
Lxx04L6	X	X			5 mA	10 mA	Sensitive Triac	TO-220L
Lxx04D6	X	X			5 mA	10 mA	Sensitive Triac	TO-252 D-PAK
Lxx04R6	X	X			5mA	10mA	Sensitive Triac	TO-220R
Lxx04V6	X	X			5 mA	10 mA	Sensitive Triac	TO-251 V-PAK
Lxx04L8	X	X			10 mA	20 mA	Sensitive Triac	TO-220L
Lxx04D8	X	X			10 mA	20 mA	Sensitive Triac	TO-252 D-PAK
Lxx04R8	X	X			10mA	20mA	Sensitive Triac	TO-220R
Lxx04V8	X	X			10 mA	20 mA	Sensitive Triac	TO-251 V-PAK
Qxx04L3	X	X			10 mA		Standard Triac	TO-220L
Qxx04D3	X	X			10 mA		Standard Triac	TO-252 D-PAK
Qxx04V3	X	X			10 mA		Standard Triac	TO-251 V-PAK
Qxx04R3	X	X			10mA		Standard Triac	TO-220R
Qxx04L4	X	X	X	X	25 mA		Standard Triac	TO-220L
Qxx04D4	X	X	X	X	25 mA		Standard Triac	TO-252 D-PAK
Qxx04R4	X	X	X	X	25mA		Standard Triac	TO-220R
Qxx04V4	X	X	X	X	25 mA		Standard Triac	TO-251 V-PAK

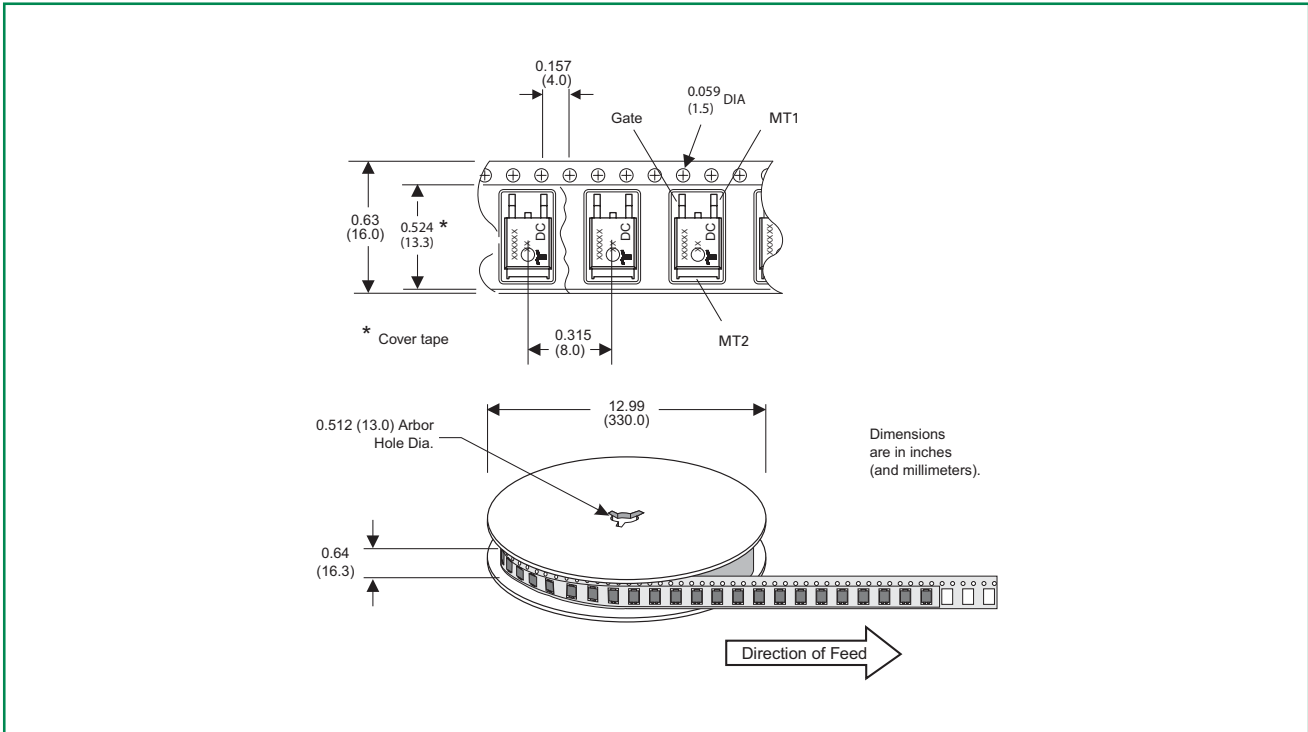
4.0A TRIACS
Packing Options

Part Number	Marking	Weight	Packing Mode	Base Quantity
L/Q004L/Ry/TP	L/Qxx04L/Ry	2.2 g	Bulk	500
L/Qxx04LyTP	L/Qxx04Ly	2.2 g	Tube	500 (50 per tube)
L/Qxx04DyRP	L/Qxx04Dy	0.3 g	Embossed Carrier	2500
L/Qxx04DyTP	L/Qxx04Dy	0.3 g	Tube Pack	750 (75 per tube)
L/Qxx04VyTP	L/Qxx04Vy	0.4 g	Tube Pack	750 (75 per tube)

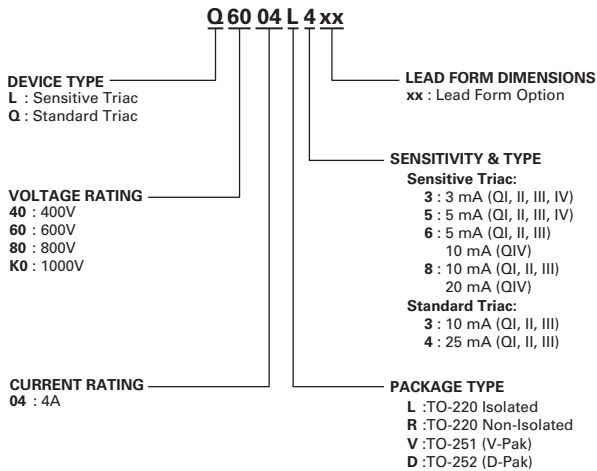
Note: xx = Voltage; y = Sensitivity

TO-252 Embossed Carrier Reel Pack (RP) Specifications

Meets all EIA-481-2 Standards

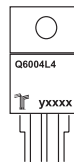


Part Numbering System



Part Marking System

TO-220 AB
(R & L Packages)



TO-251AA &
TO-252AA
(V and D Packages)

