

T-series Triacs



Immunity and commutation driven for AC appliances

T-Series Triacs are designed for the ever increasing number of AC loads in domestic appliance control. These AC appliance switches meet both the immunity and high-commutation needs, providing a very cost-effective solution.

Both immunity (dV/dt) and commutation capability (dI/dt)_c are specified at 150 °C for 800 V series. Logic level gate current (as low as 10 mA) enables optimized power supplies and direct drive from the MCU through a single resistor. In addition, the trade-off of ITSM versus immunity and commutation capability is improved. This capability is unmatched in the market today.

KEY FEATURES

- I_{TRMS} from 4 to 16 A
- V_{DRM}/V_{RRM} up to 800 V
- V_{DSM}/V_{RSM} up to 900 V
- T_J up to 150 °C @ V_{DRM}/V_{RRM} 600 V on some devices*
- 4 ranges** of I_{GT}
 - 10 mA directly driven from a microcontroller
 - 20 mA Snubberless™
 - 25 mA standard 4 quadrants
 - 35 mA Snubberless™
- UL recognized up to 2500 V_{RMS} (E81734)
- Ecopack 2 products: Rohs and halogen free compliant

KEY BENEFITS

- No need for a snubber with Snubberless™ versions, if the design respects datasheet limits
- Direct drive from a microcontroller (when $I_{GT} = 10$ mA)
- Better thermal management (keeping your load under control at higher case temperatures)

TARGETED APPLICATIONS

- Low- and medium-power load control in industrial systems
- Light dimmer
- Kitchen tools, such as soya milk makers, blenders, coffee makers, water heaters
- Power tools

* See details specification sheets on st.com

** Some currents may not yet be covered by ready-made I_{GT} versions but are available on request.

IMMUNITY (dV/dt) AND COMMUTATION (dI/dt)c, COMPARISON EXAMPLES

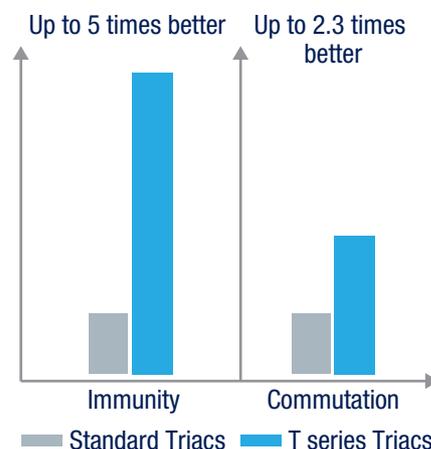
Immunity (dV/dt) and commutation (dI/dt)c @ T_j = 125 °C

T series Triacs have better noise immunity (dV/dt) up to 2 kV, which is up to 5 times above market standards.

Commutation capability, (dI/dt)c, is increased up to 16 A/ms, which is up to 2.3 times above market standards.

The table below compares a standard Triac (BTA08-600CWRG) with a T series Triac (T835T-8FP).

Part number	Current I _{T(RMS)} (A)	Immunity dV/dt (w/o snubber) (V/μs)	Commutation (dI/dt)c (A/ms)
T835-8T	8	2000	8
BTB08-800CWRG		400	4.5



Insulated packages are UL 1557 certified, under E81734 and UL94-V0 molding material for inflammability: TO-220AB Ins. as 2500 V_{RMS}, and TO220 Fullpack as 2000 V_{RMS}.

T SERIES PRODUCT TABLE

T series - High commutation (dI/dt)c and immunity (dV/dt) Triacs

Generic part number	Package			I _T (RMS) on-state current max. (A)	V _{DRM} , V _{RRM} Repetitive peak off-state voltage max. (V)	I _{TSM} Non repetitive surge peak on-state current max. (A)	T _J Junction Temperature max. (°C)	I _{GT} Triggering gate current I, II, III (IV) max. (mA)	(dI/dt)c Rate of decrease of commutating on-state current		dV/dt Rising Ratio Of Off Voltage	
	TO-220AB	Ins	TO-220FPAB						@T _J 125 °C min. (A/ms)	@T _J 150 °C min. (A/ms)	@T _J 125 °C min. (V/μs)	@T _J 150°C min.(V/μs)
Logic Level												
T610T-8	T		FP	6	800	45	150	10, 10, 10	5.2	3.7	250	170
T810T-6		I		8	600	60	125	10, 10, 10	5.4		100	
T810T-8	T		FP	8	800	60	150	10, 10, 10	6	4.2	250	170
T1210T-6		I		12	600	90	125	10, 10, 10	7		100	
T1210T-8	T		FP	12	800	90	150	10, 10, 10	11.7	8.2	250	170
T1610T-8		I		16	800	120	150	10, 10, 10	9	5.4	100	50
	T		FP						21.6	15.1	250	170
Snubberless™												
T435T-600			FP	4	600	30	125	35, 35, 35	5.3		750	
T635T-8	T		FP	6	800	45	150	35, 35, 35	6	3	2000	1000
T820T-6		I		8	600	60	125	20, 20, 20	3.4		750	
T835T-6		I		8	600	60	125	35, 35, 35	8		2000	
T835T-8	T		FP	8	800	60	150	35, 35, 35	8	4	2000	1000
T1220T-6		I		12	600	90	125	20, 20, 20	6		1000	
T1235T-8	T		FP	12	800	100	150	35, 35, 35	12	8.2	2000	1000
T1620T-8		I		16	800	120	150	20, 20, 20	6	4.5	1000	500
T1635T-8	T	I	FP	16	800	120	150	35, 35, 35	16	12	2000	1000
Standard												
T825T-6		I		8	600	60	125	25, 25, 25, 40	4.5		500	
T1225T-6		I		12	600	90	125	25, 25, 25, 40	7		100	
T1625T-8		I		16	800	120	150	25, 25, 25, 50	12	6	500	300