HIGH SPEED
NPN POWER TRANSISTORS

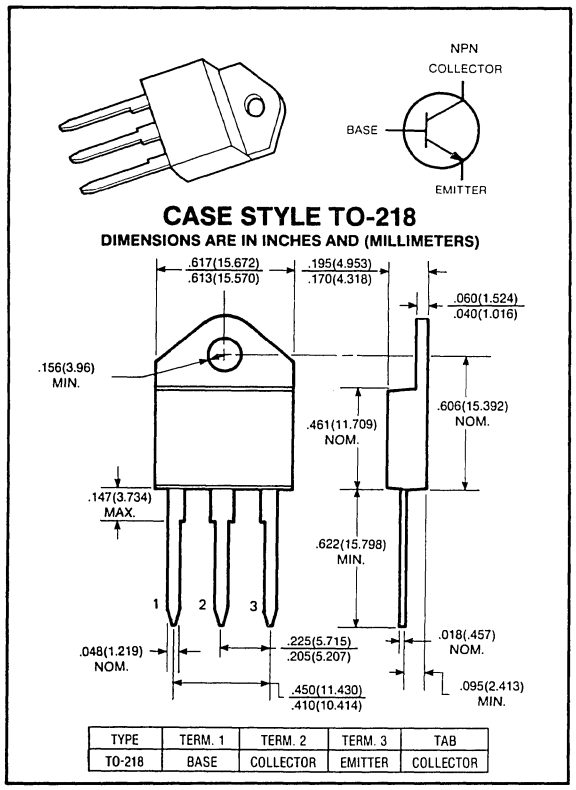
D46TQ1
D46TQ2

400-450 VOLTS
12 AMP, 110 WATTS

The D46TQ1 and D46TQ2 are designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. They are particularly suited for 115 and 220V switch-mode applications such as switching regulators, inverters, motor controls, solenoid/relay drivers and deflection circuits.

Features:

- $V_{CEO(sus)}$ 400V and 450 V
- 700 V blocking capability
- SOA and switching information.



TYPE	TERM. 1	TERM. 2	TERM. 3	TAB
TO-218	BASE	COLLECTOR	EMITTER	COLLECTOR

maximum ratings (T_A = 25° C) (unless otherwise noted)

RATING	SYMBOL	D46TQ1	D46TQ2	UNITS
Collector-Emitter Voltage	V_{CEO}	400	450	Volts
Collector-Emitter Voltage	V_{CEV}	650	750	Volts
Emitter Base Voltage	V_{EBO}	6	6	Volts
Collector Current — Continuous Peak (Repetitive)(1)	I_C I_{CM}	12 24	12 24	A
Base Current — Continuous Peak (Non-Repetitive)(1)	I_B I_{BM}	6 12	6 12	A
Total Power Dissipation @ Tc = 25° C Derate above 25° C	P_D	110 0.88	110 0.88	Watts W/° C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	-65 to +150	°C

thermal characteristics

Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.1	1.1	°C/W
Maximum Lead Temperature for Soldering Purpose: ⅛" from Case for 5 Seconds	T_L	275	275	°C

(1) Pulse Test: Pulse Width = 5ms. Duty Cycle ≤ 10%.

electrical characteristics (T_C = 25°C) (unless otherwise specified)

CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNIT
off characteristics[1]						
Collector-Emitter Sustaining Voltage (I_C = 10mA, I_B = 0)	D46TQ1 D46TQ2	$V_{CEO(sus)}$	400 450	— —	— —	Volts
Collector Cutoff Current (V_{CE} = Rated Value, $V_{BE(OFF)}$ = 1.5V)		I_{CEV}	—	—	1	mA
Emitter Cutoff Current (V_{EB} = 6V, I_C = 0)		I_{EBO}	—	—	1	mA
on characteristics[1]						
DC Current Gain (I_C = 5A, V_{CE} = 5V) (I_C = 8A, V_{CE} = 5V)		h_{FE}	8 6	— —	40 30	—
Collector-Emitter Saturation Voltage (I_C = 5A, I_B = 1A) (I_C = 8A, I_B = 1.8A) (I_C = 12A, I_B = 3A)		$V_{CE(sat)}$	— — —	— — —	1 1.5 3	V
Base-Emitter Saturation Voltage (I_C = 5A, I_B = 1A) (I_C = 8A, I_B = 1.6A)		$V_{BE(sat)}$	— —	— —	1.2 1.6	V
switching characteristics						
Resistive Load						
Delay Time	V_{CC} = 125V, I_C = 8A	t_d	—	0.06	0.1	μs
Rise Time	I_{B1} = I_{B2} = 1.6A, t_p = 25 μs	t_r	—	0.45	1	
Storage Time	Duty Cycle < 1%	t_s	—	1.3	3	
Fall Time		t_f	—	0.2	0.7	
Inductive Load, Clamped						
Storage Time	(I_C = 8A, V_{CLAMP} = 300V)	t_{sv}	—	0.92	2.3	μs
Crossover Time	(I_{B1} = 1.6A, $V_{BE(OFF)}$ = 5V T_C = 100°C)	t_c	—	0.12	0.7	

(1) Pulse Test: Pulse Width - 300μs Duty Cycle ≤ 2%.