Silicon Power Transistor
2N3773

Technical Data

Typical Applications : These devices are designed for high power audio , disk head positioners and other linear applications. These devices can also be used in power switching circuits such as relay or solenoid drivers , dc to dc converters or inverters.

Specification Fetaures :

- ☞ ***Complementary*** NPN Silicon Power Transistor
- ☞ 16 Amp / 140 V device in TO-204AA [TO-3] package
- ☞ 150 Watts device
- ☞ High safe operating area [150 W @ 100 V]
- ☞ Completely characterized for linear operation
- ☞ High DC current gain & low saturation voltage

Symbol	Parameters / Conditions	Ratings
Maximum Ratings :		
V_{CEO}	Collector- Emitter Voltage	140 Vdc
V_{CEX}	Collector- Emitter Voltage	160 Vdc
V_{CBO}	Collector - Base Voltage	160 Vdc
V_{EBO}	Emitter Base Voltage	7 Vdc
I_C I_{CM}	Collector Current – Continuos Peak : Pulse width = 5 ms , Duty Cycle 10 %	16 Adc 30 Adc
I_B I_{BM}	Base Current – Continuos Peak : Pulse width = 5 ms , Duty Cycle 10 %	4 Adc 15 Adc

Thermal Characteristics :		
R_{thjc}	Thermal resistance junction to case	1.17 °C/W
P_D	Total Power Dissipation @ Tc = 25 °C Derate above 25 °C	150 Watta 0.855 W /°C
Tj & T_{Stg}	Operating and Storage Junction Temperature Range	-65 °C ….+ 200 °C

ELECTRICAL CHARACTERISTICS :

[Tc = 25 °C unless otherwise noted]

Characteristic	Symbol	Min	Typ	Max	Unit
Off Characteristics : [Pulse Test : Pulse width = 300 μs , Duty Cycle 2 %]					
Collector – Emitter Breakdown Voltage [Ic = 0.2 Adc , I_B = 0]	$V_{CEO(sus)}$	140			Vdc
Collector – Emitter Sustaining Voltage [Ic = 0.1 Adc , $V_{BE(off)}$ = 1.5 Vdc , R_{BE} = 100 Ohms]	$V_{CEX(sus)}$	160			Vdc
Collector – Emitter Sustaining Voltage [Ic = 0.2 Adc , R_{BE} = 100 Ohms]	$V_{CER(sus)}$	150			Vdc
Collector Cutoff Current [V_{CE} = 120 Vdc , I_B = 0]	I_{CEO}			10	Vdc
Collector Cutoff Current [V_{CE} = 140 Vdc , $V_{BE(off)}$ = 1.5 Vdc] [V_{CE} = 140 V, $V_{BE(off)}$ = 1.5 Vdc , Tc = 150 °C]	I_{CEX}			2 10	mAdc
Collector Cutoff Current [V_{CB} = 140 Vdc , I_E = 0]	I_{CBO}			2	Vdc
Emitter Base Leakage [V_{EB} = 7 Vdc , Ic = 0]	I_{EBO}			5	mAdc
On Characteristics : [Pulse Test : Pulse width = 300 μs , Duty Cycle 2 %]					
DC Current Gain [Ic = 8 Adc , V_{CE} = 4 Vdc] [Ic = 16 Adc , V_{CE} = 4 Vdc]	h_{FE}	 15 5		60	
Collector-Emitter Saturation	$V_{CE(sat)}$				Vdc

Voltage [Ic = 8 Adc , I_B = 800 mAdc] [Ic = 16 Adc , I_B = 3.2 Adc]				1.4 4	
Base-Emitter Saturation Voltage [Ic = 8 Adc , I_B = 4 Adc]	$V_{BE(on)}$			2.2	Vdc

Dynamic Characteristics :					
Magnitude of Common Emitter small signal , short circuit , forward curremt transfer ratio [Ic = 1 Adc , f=50 KHz]	$\lvert h_{fe} \rvert$	4			
Small signal current gain [I_C = 1 Adc , V_{CE} = 100 Vdc , f = 1 KHz]	h_{fe}	40			
Second Breakdown Characteristics :					
Second Breakdown Collector Current with Base Forward Biased t = 1 s [non-repetitive] , V_{CE} = 100 Vdc	$I_{S/b}$	1.5			Adc