



SILICON DARLINGTON POWER TRANSISTOR

NPN TIP121

5A 65W

Technical Data

...designed for use in general-purpose low-speed switching and amplifier applications.

- ☞ High DC Current Gain - $h_{FE} = 2500(\text{Typ}) @ I_C = 4.0\text{A}_{dc}$
- ☞ Collector-Emitter Saturation Voltage - $V_{CE(\text{sat})} = 2\text{V}_{dc} (\text{Max}) @ I_C = 3\text{A}_{dc}$
- ☞ TO-220 Package
- ☞ Collector-Emitter Sustaining Voltage - $V_{CE O(\text{sus})} = 100\text{V}_{dc} (\text{Min}) @ 100\text{mA}_{dc}$

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector- Emitter Voltage	V_{CEO}	80	Vdc
Collector – Base Voltage	V_{CB}	80	Vdc
Emitter Base Voltage	V_{EB}	5	Vdc
Collector Current – Continuous	I_C	5	Adc
Peak		8	
Base Current	I_B	120	mA _{dc}
Total Power Dissipation @ TC = 25°C	PD	65	Watts
Derate above 25°C		0.52	W/°C
Operating and Storage junction Temperature Range	T_j, T_{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max.	Unit
Thermal resistance junction to case	R_{thjc}	1.92	°C/W



ELECTRICAL CHARACTERISTICS : [Tc = 25 °C unless otherwise noted]

Characteristic	Symbol	Min	Typ	Max	Unit
* OFF CHARACTERISTICS :					
Collector–Emitter Sustaining Voltage(1) [Ic =100mAdc, IB = 0]	V _{CEO(sus)}	80			Vdc
Collector Cutoff Current [V _{CE} = 50 Vdc, IB = 0]	I _{CE0}			0.5	mAdc
Collector Cutoff Current [V _{CE} =100 Vdc, V _{BE} = 0]	I _{CBO}			200	⊛Adc
Emitter Cutoff Current [V _{EB} =5.0 Vdc , Ic = 0]	I _{EBO}			2	mAdc
* ON CHARACTERISTICS (1):					
DC Current Gain [Ic = 0.5 Adc , V _{CE} = 3.0 Vdc] [Ic = 3Adc , V _{CE} =3.0 Vdc]	h _{FE}	1000 1000		---	
Collector-Emitter Saturation Voltage [Ic = 3Adc , IB = 12mAdc] [Ic = 5Adc , IB = 20mAdc]	V _{CE(sat)}			2 4	Vdc
Base-Emitter on Voltage [Ic =3.0 Adc , V _{CE} = 3.0. V _{DC}]	V _{BE(on)}			2.5	Vdc
DYNAMIC CHARACTERISTICS :					
Output Capacitance [V _{CB} =10Vdc,IE=0,f=0.1MHz]	C _{OB}			200	pF
Small-Signal Current Gain [Ic= 0.5 Adc, V _{CE} =4.0 Vdc, f=1kHz]	hfe	4			

- (1) Pulse Test : Pulse Width <300μs , Duty Cycle < 2.0%