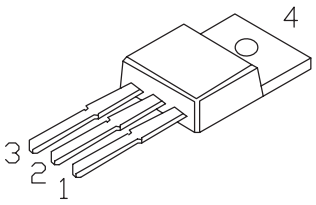
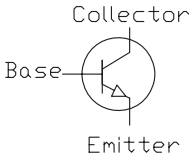
Darlington Transistor

RoHS Compliant





Features:

- High DC Current Gain
- Collector-Emitter Sustaining Voltage : $V_{CEO(SUS)}$ = 100V Min @ 100mA
- Monolithic Construction with Built-in Base-Emitter Shunt Resistors

Pin

1. Base
2. Collector
3. Emitter
4. Collector

Absolute Maximum Ratings:

Characteristics	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	100	V
Collector-Base Voltage	V_{CB}	100	V
Emitter-Base Voltage	V_{EB}	5	V
Collector Current	I_C	8	A
Continuous		16	A
Base Current	I_B	120	mA
Total Power Dissipation (T_C = +25°C)	P_D	75	W
Derate above +25°C		0.6	W/°C
Total Power Dissipation (T_A = +25°C)	P_D	2.2	W
Derate above +25°C		0.175	W/°C
Operating Junction Temperature Range	T_J	-65 to +150	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C
Thermal Resistance, Junction-to-Case	R_{thJC}	1.67	°C/W
Thermal Resistance, Junction-to-Ambient (Note 1)	R_{thJA}	57°	C/W

Note

(1) I_C = 1A, L = 100mH, P.R.F. = 10Hz, V_{CC} = 20V, R_{BE} = 100Ω

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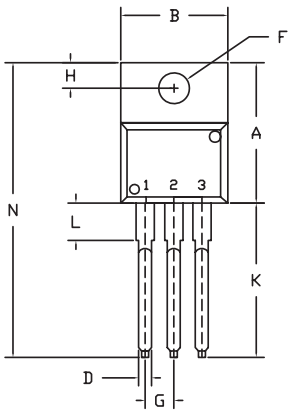
Electrical Characteristics : (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	I_C = 100mA, I_B = 0, (Note 2)	100	-	-	V
Collector Cut-off Current	I_{CEO}	V_{CE} = 45V, I_B = 0	-	-	20	uA
	I_{CBO}	V_{CB} = 100V, I_E = 0	-	-	0.02	mA
Emitter Cut-Off Current	I_{EBO}	V_{BE} = 5V, I_C = 0	-	-	2	
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	V_{CE} = 4V, I_C = 3A	1,000	-	20,000	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C = 3A, I_B = 12mA	-	-	2	V
		I_C = 8A, I_B = 80mA	-	-	4	V
Base-Emitter ON Voltage	$V_{BE(ON)}$	V_{CE} = 4V, I_C = 4A	-	-	2.8	V
Dynamic characteristics						
Small-Signal Current Gain	$\|h_{fe}\|$	V_{CE} = 4V, I_C = 3A, f = 1MHz	4	-	-	
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0	-	-	200	pF

Note

(2) Pulse test: Pulse Width </=300µs, Duty Cycle </=2%.



Dim.	Min.	Max.
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	-	0.9
E	1.15	1.4
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	-	0.56
K	12.7	14.73
L	2.8	4.07
M	2.03	2.92
N	-	31.24
O	DEF 7	

Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, 8A, 100V, TO220	2N6045