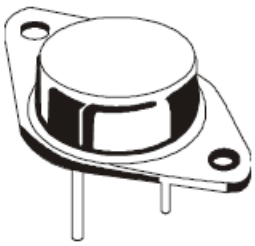
Darlington Power Transistors (NPN)



TO-3

Features

- Designed for use as output devices in complementary General purpose amplifier
- High Gain Darlington performance
- High DC Current Gain: h_{FE}=1000 (min) @ Ic=25A
  h_{FE}=400 (min) @ Ic=50A
- Monolithic construction with built-in base-emitter shunt resistor
- RoHS Compliant

Mechanical Data

- Case: TO-3, Metal Can Package

Maximum Ratings *($T_{Ambient}$=25ºC unless noted otherwise)*

Symbol	Description	Value	Unit
V_{CBO}	Collector-Base Voltage	120	V
V_{CEO}	Collector-Emitter Voltage	120	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current Continuous	50	A
I_{CM}	Collector Current Peak	100	A
I_B	Base Current	2.0	A
P_C	Collector Power Dissipation at T_C=25°C	300	W
	Derate above 25°C	1.71	W/°C
R_{thjc}	Thermal Resistance from Junction to Case	0.584	°C/W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-65 to +200	°C

MJ11032

Electrical Characteristics *(T Ambient=25ºC unless noted otherwise)*

Symbol	Description	Min.	Max.	Unit	Conditions
*h_{FE}	D.C. Current Gain	1000	18000	-	V_{CE}=5V, I_C=25A
		400	-		V_{CE}=5V, I_C=50A
$\|h_{fe}\|$	Small-Signal Current Gain	4.0	-	-	V_{CE}=3V, I_C=10A, f=1.0MHz
*$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	120	-	V	I_C=30mA, I_B=0
*$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	-	2.5	V	I_C=25A, I_B=250mA
		-	3.5	V	I_C=50A, I_B=500mA
*$V_{BE(sat)}$	Base-Emitter Saturation Voltage	-	3.0	V	I_C=25A, I_B=250mA
		-	4.5	V	I_C=50A, I_B=300mA
I_{CEO}	Collector-Emitter Cut-off Current	-	2.0	mA	V_{CE}=50V, I_B=0
I_{CER}	Collector-Emitter Leakage Current	-	10	mA	V_{CE}=120V, R_{BE}=1KΩ, Tc=125°C
I_{EBO}	Emitter-Base Cut-off Current	-	5.0	mA	V_{EB}=5V, I_C=0

***Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%**

Typical Characteristics Curves

Fig.1- Power Derating

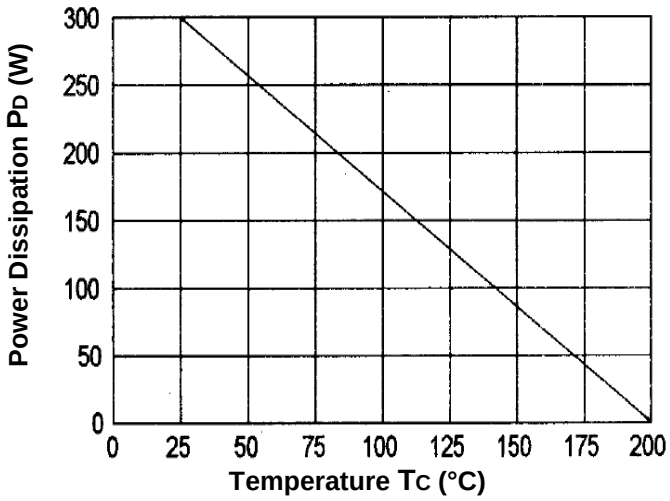


Fig.2- DC Current Gain

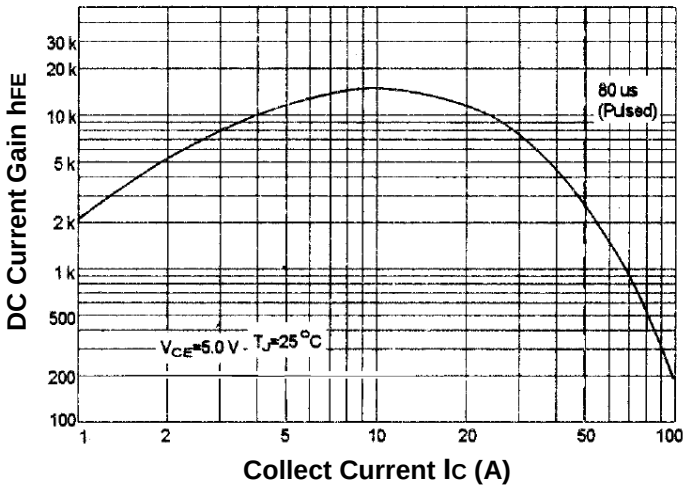


Fig.3- On-Voltages

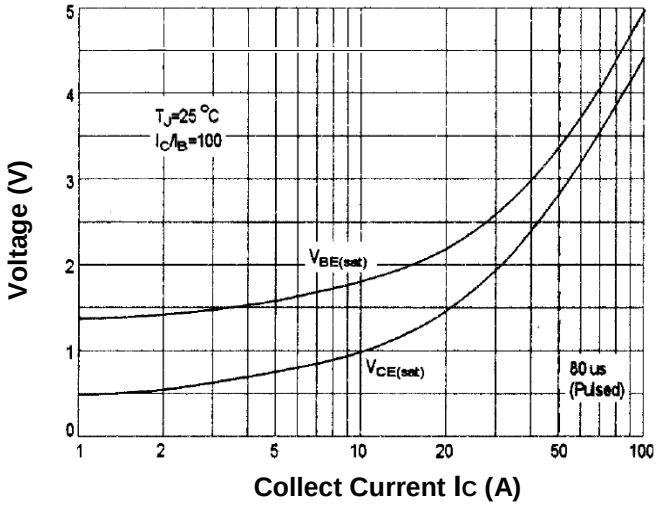
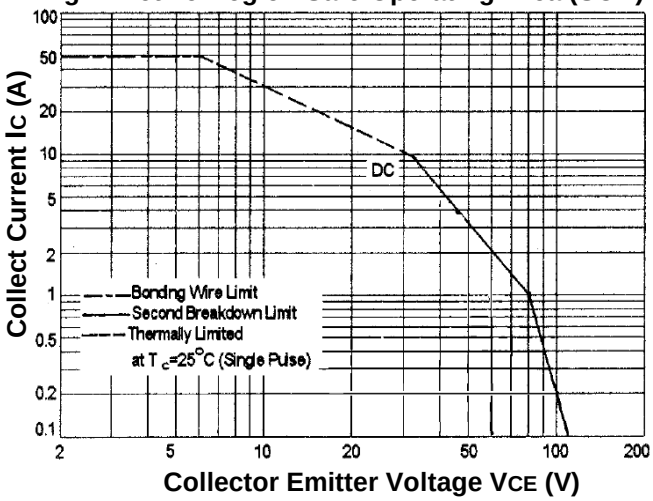
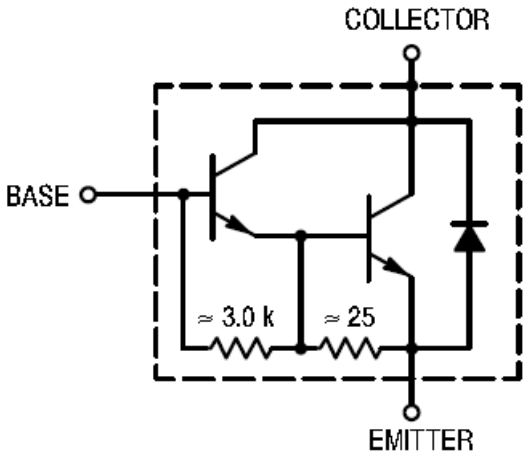


Fig.4- Active-Region Safe Operating Area (SOA)



Circuit Schematic



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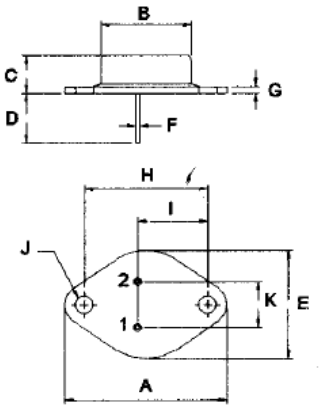
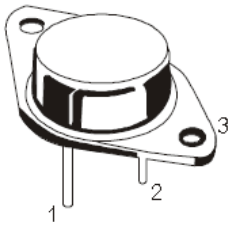
Dimensions in inch (mm)

TO-3



DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	1.46	1.55
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18



PIN CONFIGURATION
1. BASE
2. EMITTER
3. COLLECTOR

How to contact us

US HEADQUARTERS
28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162
Tel: (800)-TAITRON (800)-824-8766 (661)-257-6060
Fax: (800)-TAITFAX (800)-824-8329 (661)-257-6415
Email: taitron@taitroncomponents.com
Http://www.taitroncomponents.com

TAITRON COMPONENTS MEXICO, S.A .DE C.V.
BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO
C.P. 42970 MEXICO
Tel: +52-55-5560-1519
Fax: +52-55-5560-2190

TAITRON COMPONENTS INCORPORATED TAIWAN, TAIPEI
6F., No.190, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei City 23146, Taiwan R.O.C.
Tel: 886-2-2913-6238
Fax: 886-2-2913-6239

TAITRON COMPONENTS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE
METROBANK PLAZA,1160 WEST YAN'AN ROAD, SUITE 1503, SHANGHAI,200052, CHINA
Tel: +86-21-5424-9942