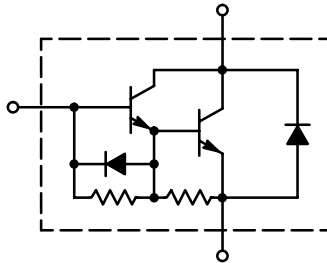


NPN Darlington Power Transistor

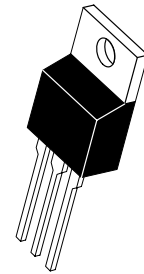
This Darlington transistor is a high voltage, high speed device for use in horizontal deflection circuits in TV's and CRT's.

- High Voltage:
 $V_{CEV} = 330$ or 400 V
- Fast Switching Speed:
 $t_c = 1.0 \mu s$ (max)
- Low Saturation Voltage:
 $V_{CE(sat)} = 1.5$ V (max)
- Packaged in JEDEC TO-220AB
- Damper Diode V_F is specified.
 $V_F = 2.0$ V (max)



BU806

**8.0 AMPERE
DARLINGTON
NPN POWER
TRANSISTORS
60 WATTS
200 VOLTS**



**CASE 221A-09
TO-220AB**

MAXIMUM RATINGS

Rating	Symbol	BU806	Unit
Collector–Emitter Voltage	V_{CEO}	200	Vdc
Collector–Emitter Voltage	V_{CEV}	400	Vdc
Collector–Base Voltage	V_{CBO}	400	Vdc
Emitter–Base Voltage	V_{EBO}	6.0	Vdc
Collector Current — Continuous — Peak	I_C	8.0 15	Adc
Emitter–Collector Diode Current	I_F	10	Adc
Base Current	I_B	2.0	Adc
Total Device Dissipation, $T_C = 25^\circ C$ Derate above $T_C = 25^\circ C$	P_D	60 0.48	Watts W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to 150	$^\circ C$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.08	$^\circ C/W$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	70	$^\circ C/W$
Lead Temperature for Soldering Purposes, 1/8" from Case for 5.0 Seconds	T_L	275	$^\circ C$

BU806

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (1) ($I_C = 100\text{ mAdc}$, $I_B = 0$)	$V_{CE(sus)}$	200	—	—	Vdc
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CBO}$, $V_{BE} = 0$)	I_{CES}	—	—	100	μAdc
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CEV}$, $V_{BE(off)} = 6.0\text{ Vdc}$)	I_{CEV}	—	—	100	μAdc
Emitter Cutoff Current ($V_{EB} = 6.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	—	3.0	mAdc

ON CHARACTERISTICS (1)

Collector–Emitter Saturation Voltage ($I_C = 5.0\text{ Adc}$, $I_B = 50\text{ mAdc}$)	$V_{CE(sat)}$	—	—	1.5	Vdc
Base–Emitter Saturation Voltage ($I_C = 5.0\text{ Adc}$, $I_B = 50\text{ mAdc}$)	$V_{BE(sat)}$	—	—	2.4	Vdc
Emitter–Collector Diode Forward Voltage ($I_F = 4.0\text{ Adc}$)	V_F	—	—	2.0	Vdc

SWITCHING CHARACTERISTICS

Turn–On Time	(Resistive Load, $V_{CC} = 100\text{ Vdc}$, $I_C = 5.0\text{ Adc}$, $I_{B1} = 50\text{ mAdc}$, $I_{B2} = 500\text{ mAdc}$)	t_{on}	—	0.35	—	μs
Storage Time		t_s	—	0.55	—	μs
Fall Time		t_f	—	0.20	—	μs
Crossover Time ($I_C = 5.0\text{ Adc}$, $I_{B1} = 50\text{ mAdc}$, $V_{BE(off)} = 4.0\text{ Vdc}$, $V_{clamp} = 200\text{ Vdc}$, $L = 500\text{ }\mu\text{H}$)		t_c	—	0.40	1.0	μs

(1) Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 1\%$.

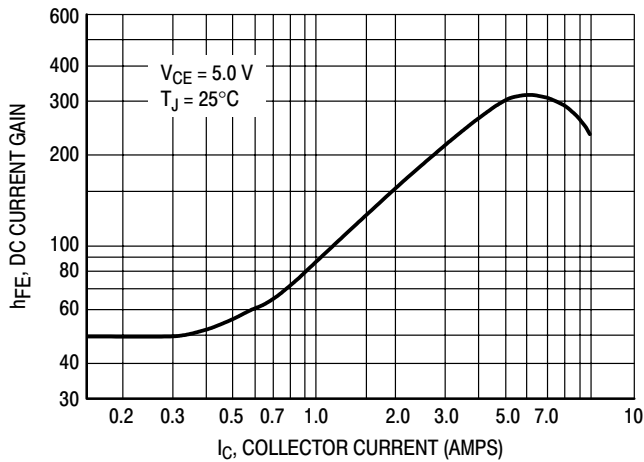


Figure 1. DC Current Gain

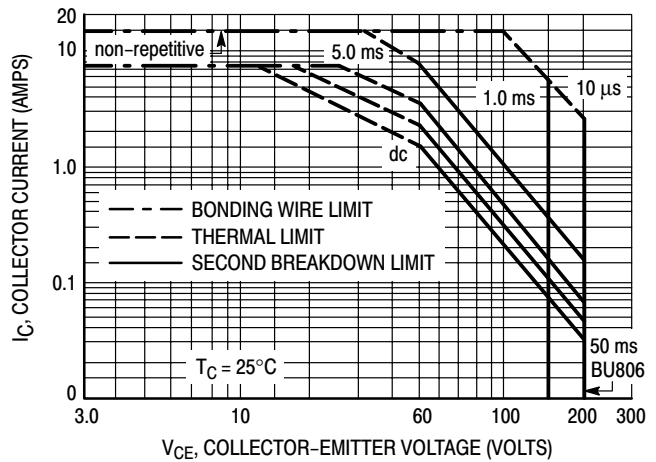
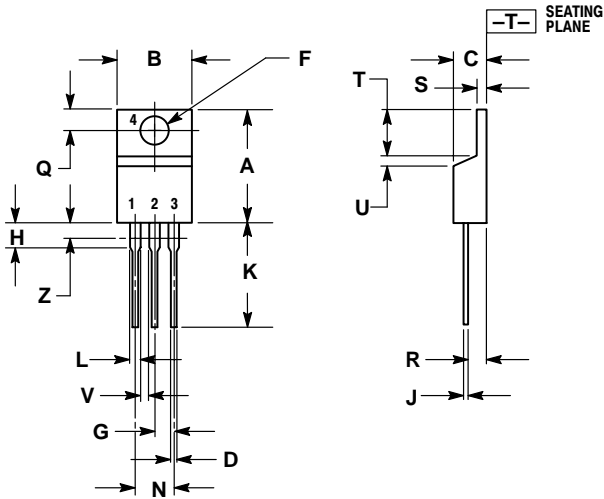


Figure 2. Safe Operating Area (FBSOA)

BU806

PACKAGE DIMENSIONS


TO-220AB CASE 221A-09 ISSUE AA



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

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