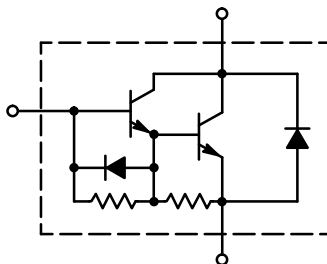


NPN Darlington Power Transistor

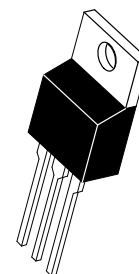
This Darlington transistor is a high voltage, high speed device for use in horizontal deflection circuits in TV's and CRT's.

- 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-06
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	$^\circ C$

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 $\leq 1\%$.

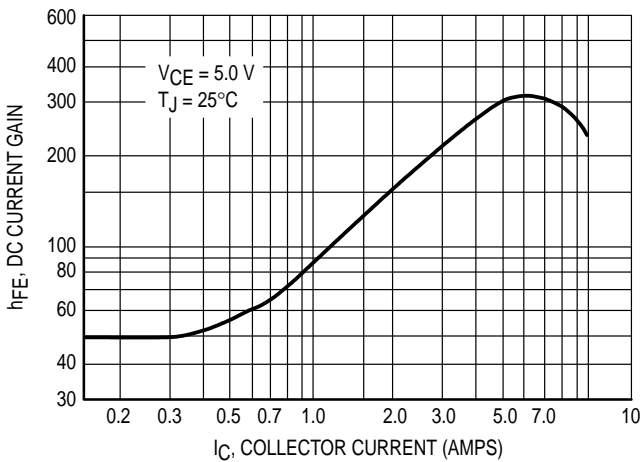


Figure 1. DC Current Gain

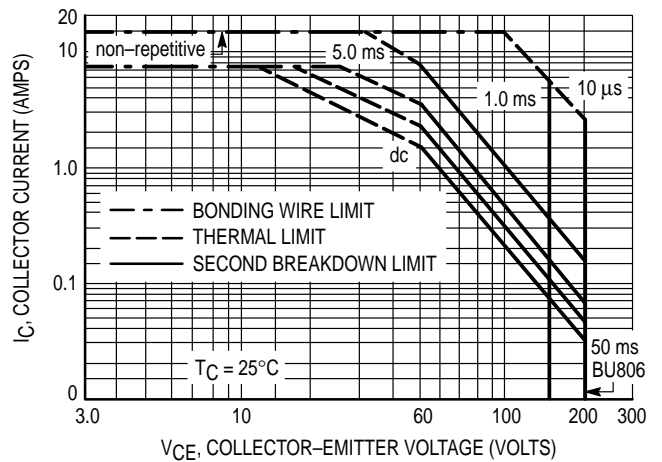
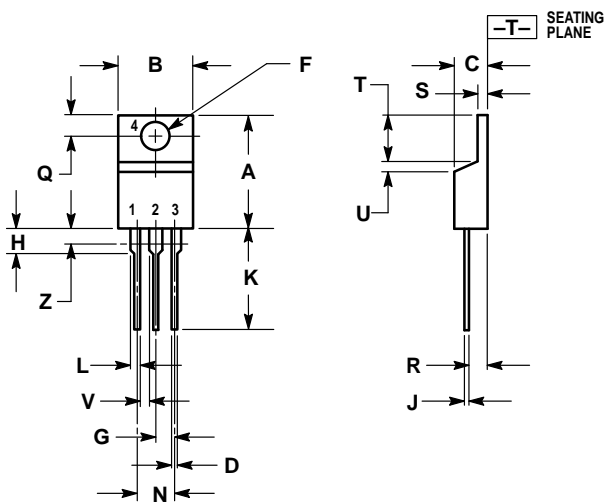


Figure 2. Safe Operating Area (FSOA)

PACKAGE DIMENSIONS



- 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

- STYLE 1:
 PIN 1. BASE
 2. COLLECTOR
 3. EMITTER
 4. COLLECTOR

CASE 221A-06
 TO-220AB
 ISSUE Y

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

How to reach us:

USA / EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE (602) 244-6609
INTERNET: <http://Design-NET.com>

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,
6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298



This datasheet has been downloaded from:

www.DatasheetCatalog.com

Datasheets for electronic components.