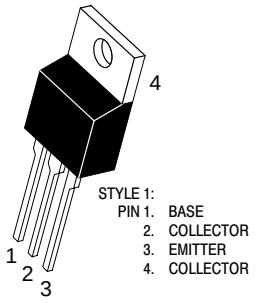
BU406
BU407

NPN Power Transistors

These devices are high voltage, high speed transistors for horizontal deflection output stages of TV's and CRT's.

- High Voltage: V_{CEV} = 330 or 400 V
- Fast Switching Speed: t_f = 750 ns (max)
- Low Saturation Voltage: $V_{CE(sat)}$ = 1 V (max) @ 5 A
- Packaged in Compact JEDEC TO–220AB

7 AMPERES
NPN SILICON
POWER TRANSISTORS
60 WATTS
150 and 200 VOLTS



CASE 221A–09
TO–220AB

MAXIMUM RATINGS

Rating	Symbol	BU406	BU407	Unit
Collector–Emitter Voltage	V_{CEO}	200	150	Vdc
Collector–Emitter Voltage	V_{CEV}	400	330	Vdc
Collector–Base Voltage	V_{CBO}	400	330	Vdc
Emitter Base Voltage	V_{EBO}	6		Vdc
Collector Current — Continuous Peak Repetitive Peak (10 ms)	I_C	7 10 15		Adc
Base Current	I_B	4		Adc
Total Device Dissipation, T_C = 25°C Derate above T_C = 25°C	P_D	60 0.48		Watts 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	$R_{\theta JC}$	2.08	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	70	°C/W
Lead Temperature for Soldering Purposes: 1/8″ from Case for 5 Seconds	T_L	275	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Sustaining Voltage(1) (I_C = 100 mAdc, I_B = 0)	BU406	$V_{CEO(sus)}$	200	—	—	Vdc
	BU407		150	—	—	
Collector Cutoff Current		I_{CES}				mAdc
(V_{CE} = Rated V_{CEV}, V_{BE} = 0)			—	—	5	
(V_{CE} = Rated V_{CEO} + 50 Vdc, V_{BE} = 0)			—	—	0.1	
(V_{CE} = Rated V_{CEO} + 50 Vdc, V_{BE} = 0, T_C = 150°C)			—	—	1	
Emitter Cutoff Current (V_{EB} = 6 Vdc, I_C = 0)	BU406, BU407	I_{EBO}	—	—	1	mAdc
ON CHARACTERISTICS (1)						
Collector–Emitter Saturation Voltage (I_C = 5 Adc, I_B = 0.5 Adc)		$V_{CE(sat)}$	—	—	1	Vdc
Base–Emitter Saturation Voltage (I_C = 5 Adc, I_B = 0.5 Adc)		$V_{BE(sat)}$	—	—	1.2	Vdc
Forward Diode Voltage (I_{EC} = 5 Adc) “D” only		V_{EC}	—	—	2	Volts
DYNAMIC CHARACTERISTICS						
Current–Gain — Bandwidth Product (I_C = 0.5 Adc, V_{CE} = 10 Vdc, f_{test} = 20 MHz)		f_T	10	—	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1 MHz)		C_{ob}	—	80	—	pF
SWITCHING CHARACTERISTICS						
Inductive Load Crossover Time (V_{CC} = 40 Vdc, I_C = 5 Adc, I_{B1} = I_{B2} = 0.5 Adc, L = 150 μH)		t_c	—	—	0.75	μs

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 1%.

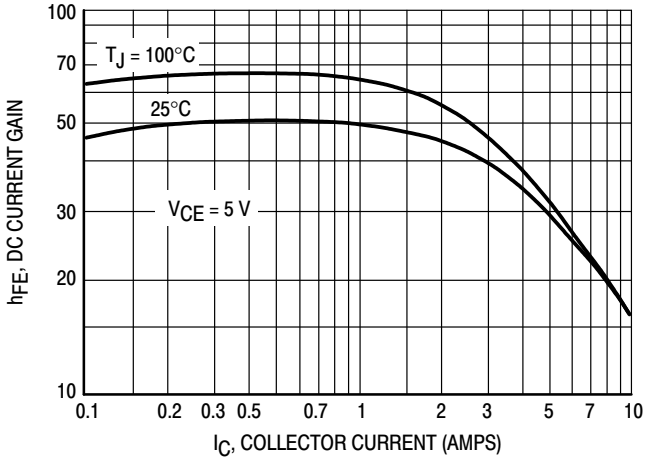


Figure 1. DC Current Gain

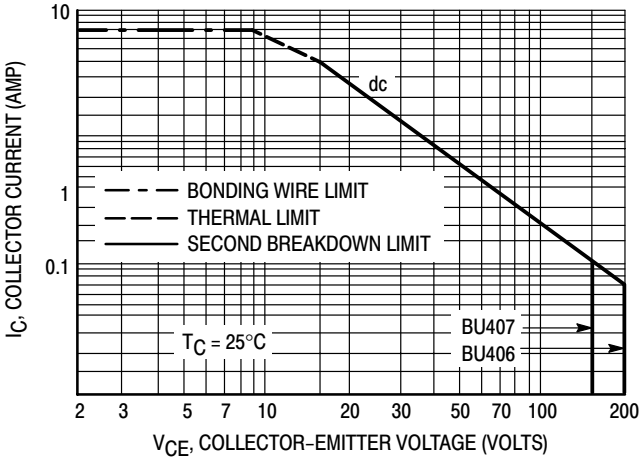
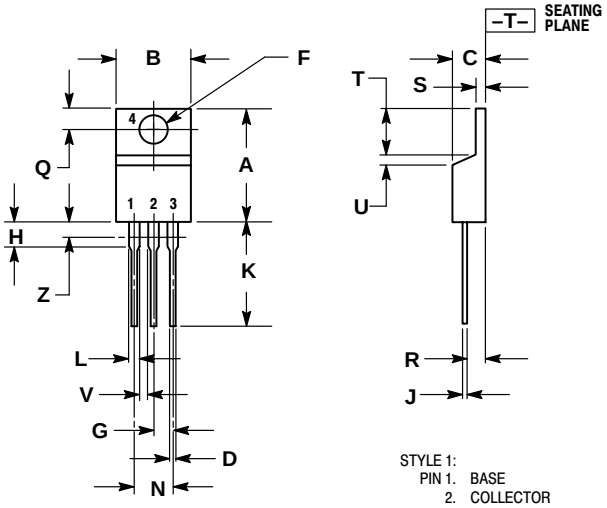


Figure 2. Maximum Rated Forward Bias Safe Operating Area

PACKAGE DIMENSIONS

TO−220AB
CASE 221A−09
ISSUE AA



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

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.

	INCHES		MILLIMETERS	
DIM	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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