

BU522B

7 AMPERES
DARLINGTON
POWER TRANSISTORS
NPN SILICON
450 VOLTS
75 WATTS

High Voltage Silicon Power Darlington

Power Transistor mainly intended for use as ignition circuit output transistor.

- Specified minimum sustaining voltage:
 $V_{CER(sus)} = 425 \text{ V}$ at $I_C = 1 \text{ A}$
- High S.O.A. capability:
 $V_{CE} = 400 \text{ V}$
- Low $V_{CE(sat)} = 2.0 \text{ V}$ max. at $I_C = 4 \text{ A}$

MAXIMUM RATINGS

Rating	Symbol	BU522B	Unit
Collector–Emitter Voltage Sust.	$V_{CER(sus)}$	425	Vdc
Collector–Emitter Voltage	V_{CER}	450	Vdc
Collector–Base Voltage	V_{CBO}	475	Vdc
Emitter–Base Voltage	V_{EBO}	5.0	Vdc
Collector Current Continuous	I_C	7.0	Adc
Base Current	I_B	2.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	75 0.60	Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max.	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.67	$^\circ\text{C/W}$

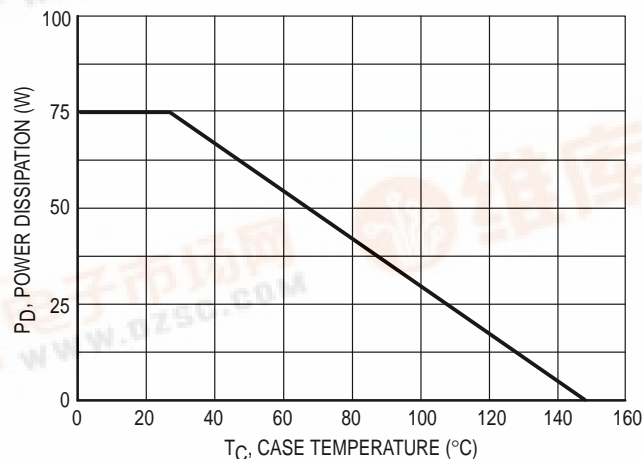
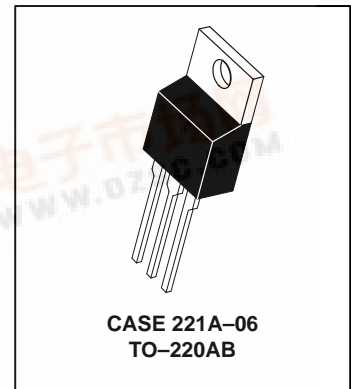


Figure 1. Power Derating

BU522B**ELECTRICAL CHARACTERISTICS** ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

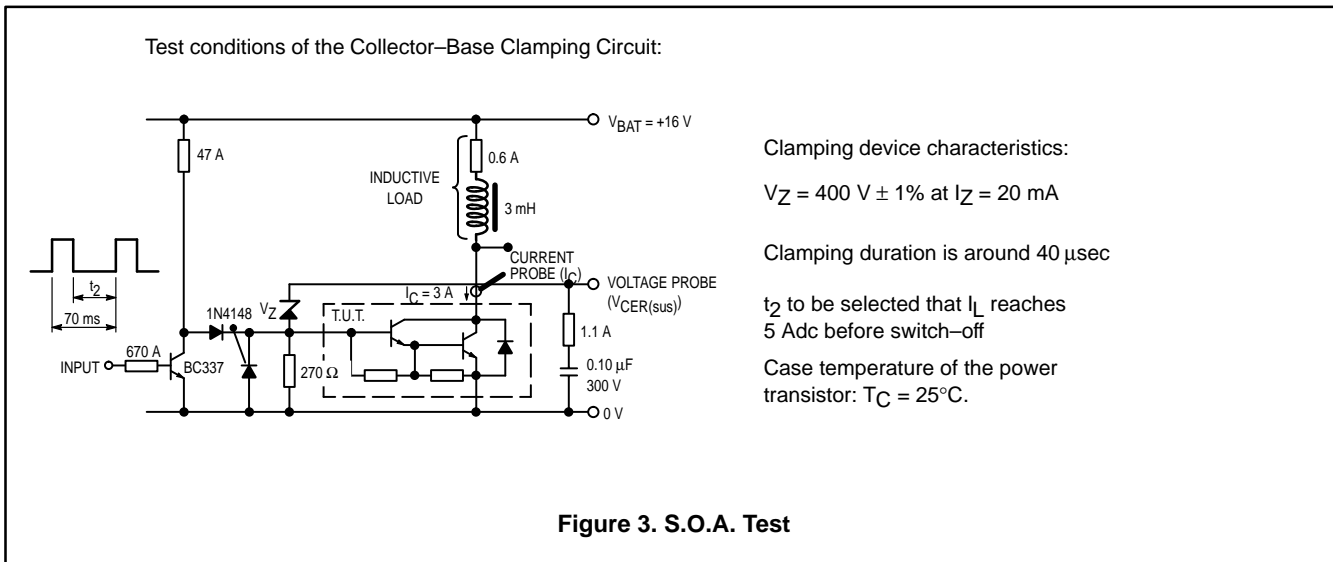
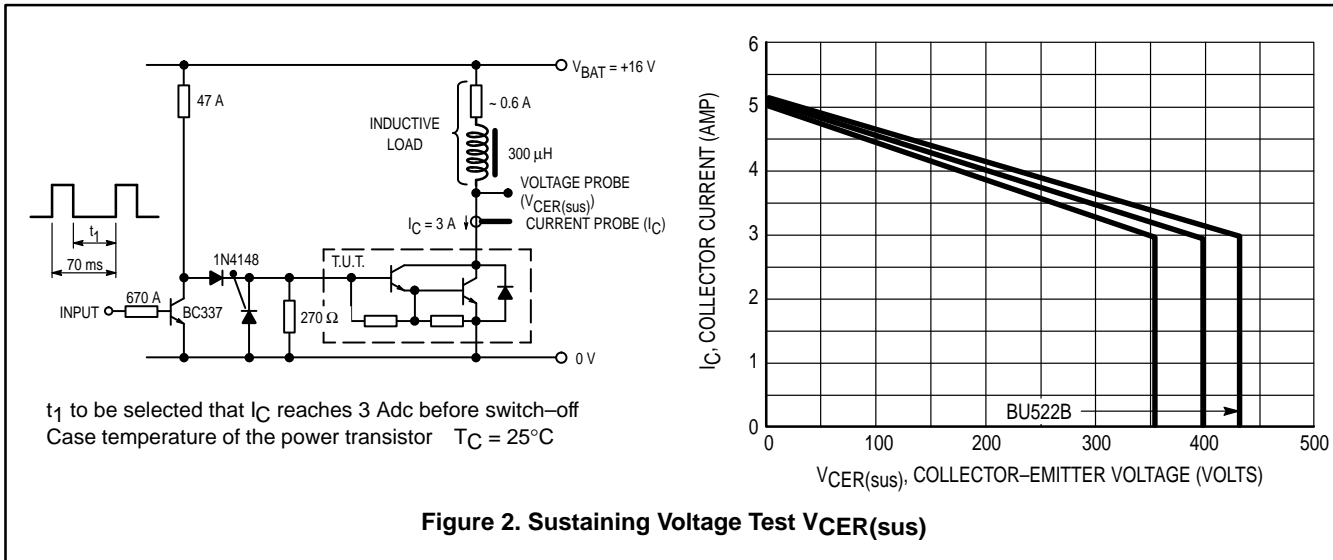
Collector–Emitter Sustaining Voltage (See Figure 2) ($I_C = 1.0\text{ A}$) See Figure 2	$V_{CER(sus)}$	425			Vdc
Collector Cutoff Current (Rated V_{CER} , $R_{BE} = 270\ \Omega$)	I_{CER}			1.0	mAdc
Collector Cutoff Current (Rated V_{CBO} , $I_E = 0$)	I_{CBO}			1.0	mAdc
Emitter Cutoff Current ($V_{EB} = 5.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}			40	mAdc

ON CHARACTERISTICS

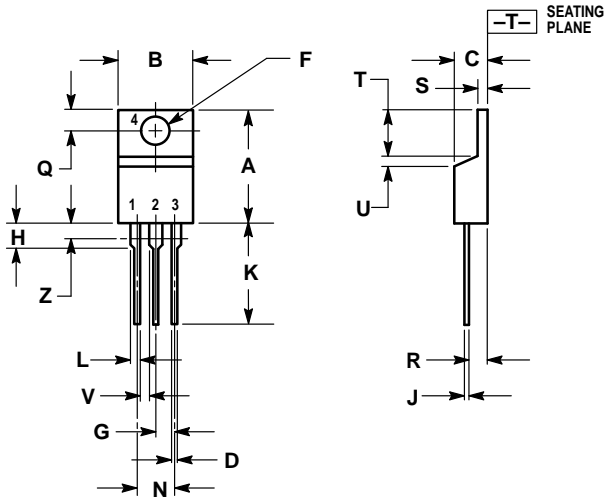
DC Current Gain ($I_C = 2.5\text{ Adc}$, $V_{CE} = 5\text{ Vdc}$)	h_{FE}	250			—
Collector–Emitter Saturation Voltage ($I_C = 4\text{ Adc}$, $I_B = 80\text{ mAdc}$)	$V_{CE(sat)}$			2	Vdc
Base–Emitter Saturation Voltage ($I_C = 4\text{ Adc}$, $I_B = 80\text{ mAdc}$)	$V_{BE(sat)}$			2.5	Vdc

DYNAMIC CHARACTERISTICS

Current Gain — Bandwidth Product ($I_C = 0.3\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$, $f_{test} = 10\text{ MHz}$)	f_T		7.5		MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 0.1\text{ MHz}$)	C_{ob}		150		pF



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**

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