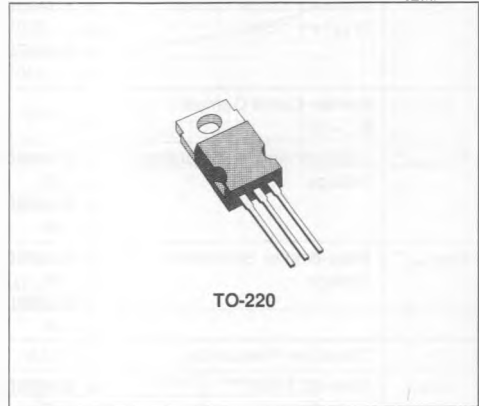


HORIZONTAL TV DEFLECTORS

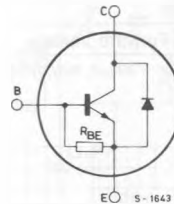
DESCRIPTION

The BU406D, BU407D, and BU408D are silicon planar epitaxial NPN transistors with integrated damper diode, in Jedec TO-220 plastic package. They are fast switching, high voltage devices for use in horizontal deflection output stages of MTV receivers with 110" CRT.

The BU406D and BU408D are primarily intended for large screen, while the BU407D is for medium and small screens.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		BU406D	BU407D	BU408D	
V_{CBO}	Collector-base Voltage ($I_E = 0$)	400	330	400	V
V_{CEV}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	400	330	400	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	6			V
I_C	Collector Current	7			A
I_{CM}	Collector Peak Current (repetitive)	10			A
I_{CM}	Collector Peak Current ($t_p = 10ms$)	15			A
I_B	Base Current	4			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	60			W
T_{stg}	Storage Temperature	- 65 to 150			$^\circ C$
T_j	Junction Temperature	150			$^\circ C$

THERMAL DATA

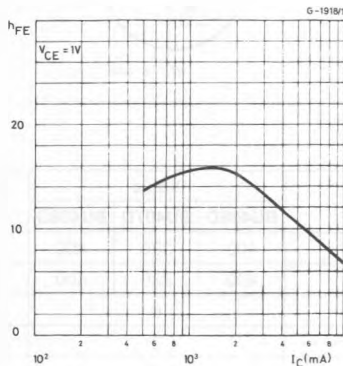
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	2.08	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	70	°C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

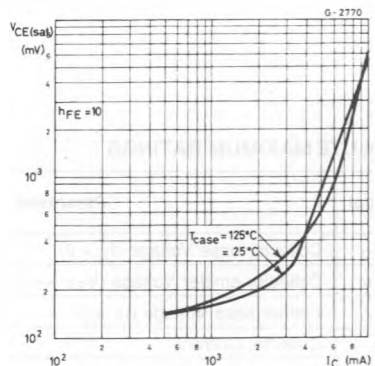
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cutoff Current ($V_{BE} = -1.5V$)	for BU406D and BU408D $V_{CE} = 400V$ for BU407D $V_{CE} = 330V$			15	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 6V$			400	mA
$V_{CE(sat)^*}$	Collector-emitter Saturation Voltage	for BU406D and BU407D $I_C = 5A$ $I_B = 0.65A$ for BU408D $I_C = 6A$ $I_B = 1.2A$			1	V
$V_{BE(sat)^*}$	Base-emitter Saturation Voltage	for BU406D and BU407D $I_C = 5A$ $I_B = 0.65A$ for BU408D $I_C = 6A$ $I_B = 1.2A$			1.3	V
f_T	Transition Frequency	$I_C = 0.5A$ $V_{CE} = 10V$	10			MHz
t_{off}	Turn-off Time	for BU406D and BU407D $I_C = 5A$ $I_{Bend} = 0.65A$ for BU408D $I_C = 6A$ $I_{Bend} = 1.2A$			0.75	μs
$I_{s/b}$	Second Breakdown Collector Current	$V_{CE} = 40V$ $t = 10ms$		4		A
V_F	Diode Forward Voltage	$I_F = 5A$			1.5	V

* Pulsed : pulse duration = 300 μs , duty cycle = 1.5%.

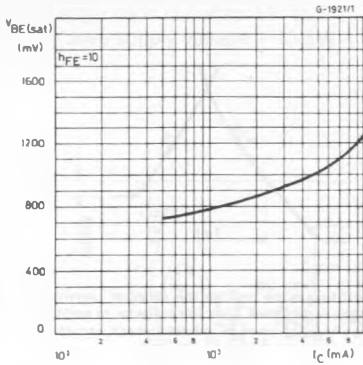
DC Current Gain.



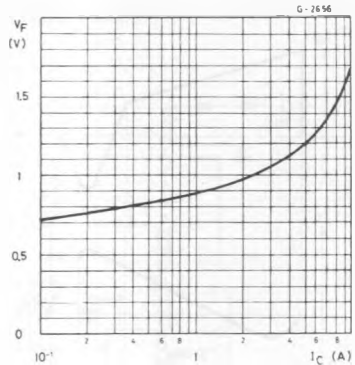
Collector-emitter Saturation Voltage.



Base-emitter Saturation Voltage.

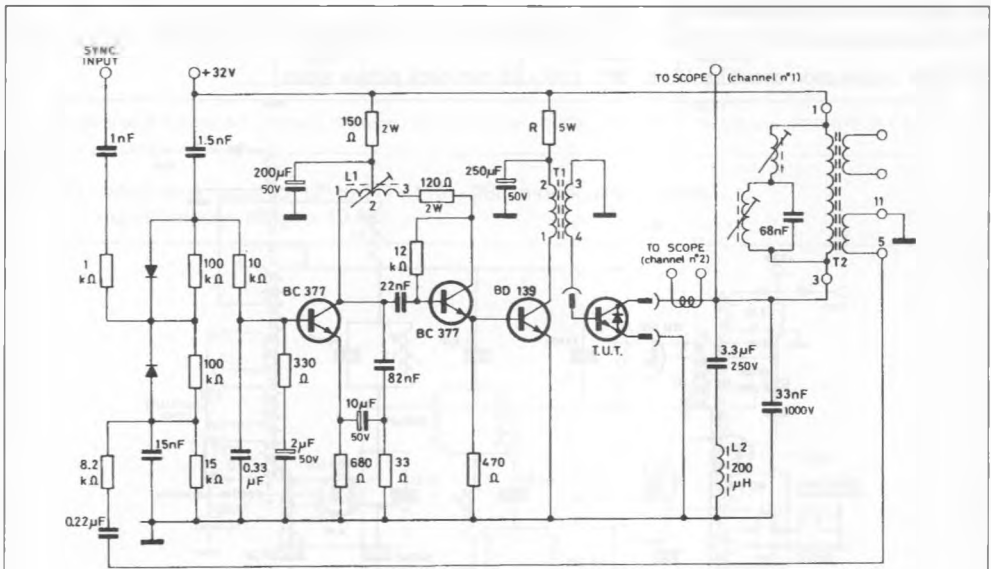


Forward Voltage.



SWITCHING TIMES

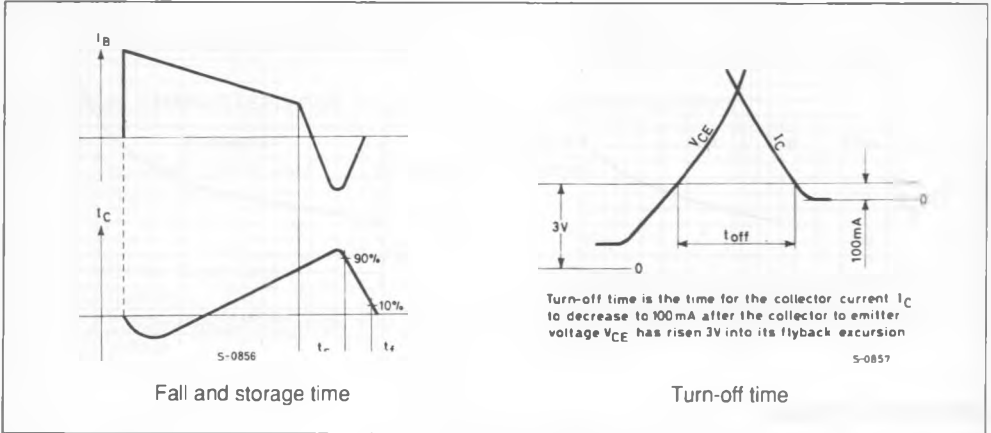
TEST CIRCUIT (FALL, STORAGE AND TURN-OFF TIME)



5-229/71

- L1 Horizontal hold coil : Pins 1-2 = 75 turns Ø 0.2mm ; R = 1.5Ω ; L min = 0.62mH
- Pins 2-3 = 293 turns Ø 0.2mm ; R = 4.8Ω ; L max = 4.1mH
- L2 Horizontal yoke = 200μH
- T1 Driver transformer : Pins 1-2 = 125 turns Ø 0.2mm ;
- Gap = 0.12mm ; Core = 3E3 double E 19x15x5
- Pins 3-4 = 25 turns Ø 0.4mm ;
- T2 EHT transformer manufacturer ARCO type 249.065/035
- R = 270Ω for BU406D and BU407D
- R = 180Ω for BU408D

Waveforms



APPLICATION INFORMATION

Two examples are given of the BU406D and BU407D in conventional MTV horizontal deflection circuits. BU406D - application circuit for 17" to 24" - 110° - 28 mm neck picture tubes.

