Silicon NPN Transistor

BU408

Horizontal TV Deflectors

400V / 6A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

Datasheet Rev. 2.0 – 09/19 – data without warranty / liability

BU 406
BU 406H
BU 408

EPITAXIAL PLANAR NPN

HORIZONTAL TV DEFLECTORS

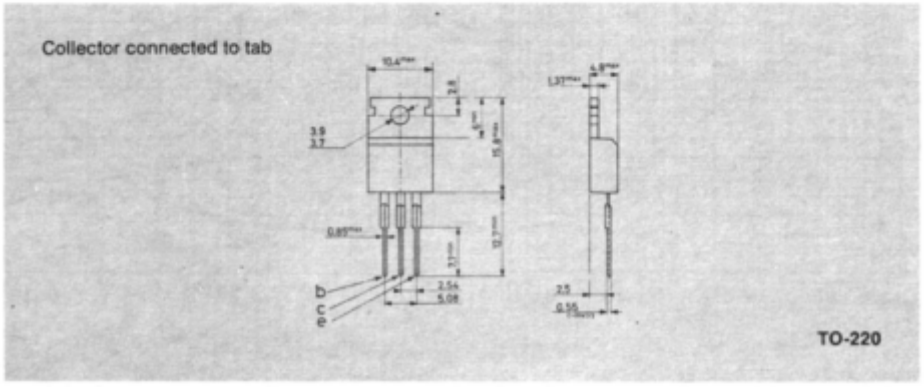
The BU 406, BU 406H and BU 408 are silicon epitaxial planar NPN transistors in Jedec TO-220 plastic package. They are fast switching, high voltage devices for use in horizontal deflection output stages of large screen MTV receivers with 110° CRT.

ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	400	V
V_{CEV}	Collector-emitter voltage ($V_{BE} = -1.5V$)	400	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	200	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 = 10 ms)	15	A
I_B	Base current	4	A
P_{tot}	Total power dissipation at $T_{case} \leq 25$ °C	60	W
T_{stg}	Storage temperature	-65 to 150	°C
T_j	Junction temperature	150	°C

MECHANICAL DATA

Dimensions in mm



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THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	2.08	°C/W
$R_{th\ j\text{-}amb}$	Thermal resistance junction-ambient	max	70	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cutoff current (V_{BE} = 0)	V_{CE} = 400 V			5	mA
		V_{CE} = 250 V			100	µA
		V_{CE} = 250 V T_{case} = 150°C			1	mA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 6 V			1	mA
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	for **BU406** I_C = 5 A I_B = 0.5 A			1	V
		for **BU406H** I_C = 5 A I_B = 0.8 A			1	V
		for **BU408** I_C = 6 A I_B = 1.2 A			1	V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	for **BU406** I_C = 5 A I_B = 0.5 A			1.2	V
		for **BU406H** I_C = 5 A I_B = 0.8 A			1.2	V
		for **BU408** I_C = 6 A I_B = 1.2 A			1.5	V
f_T	Transition frequency	I_C = 0.5 A V_{CE} = 10 V	10			MHz
t_{off}**	Turn-off time	for **BU406** I_C = 5 A $I_{B\ end}$ = 0.5A			0.75	µs
		for **BU406H** I_C = 5 A $I_{B\ end}$ = 0.8A			0.4	µs
		for **BU408** I_C = 6 A $I_{B\ end}$ = 1.2A			0.4	µs
$I_{s/b}$	Second breakdown collector current	V_{CE} = 40 V t = 10ms	4			A

* Pulsed: pulse duration = 300 µs, duty cycle = 1.5%
** See test circuit

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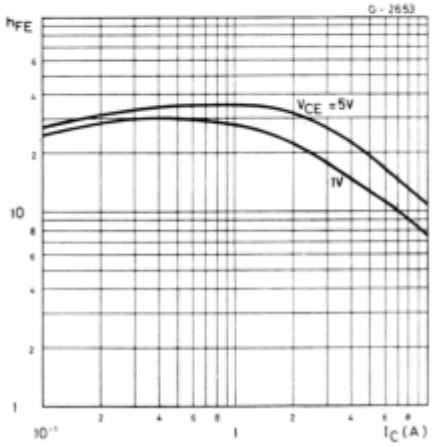
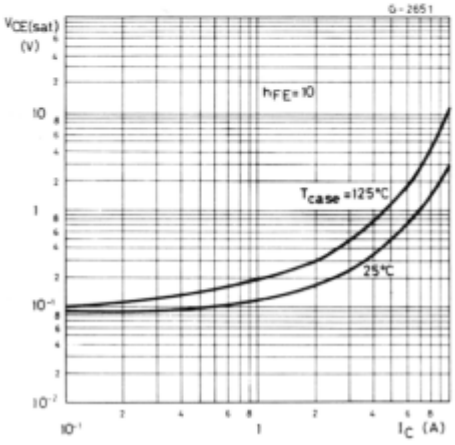
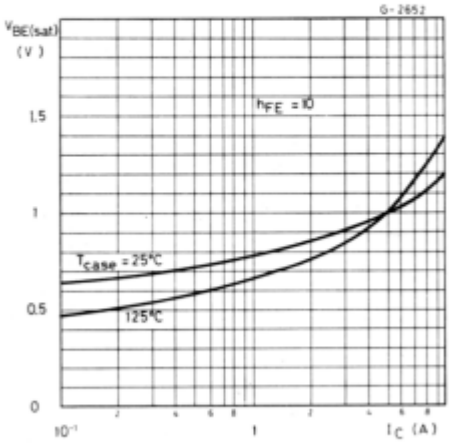
DC current gain



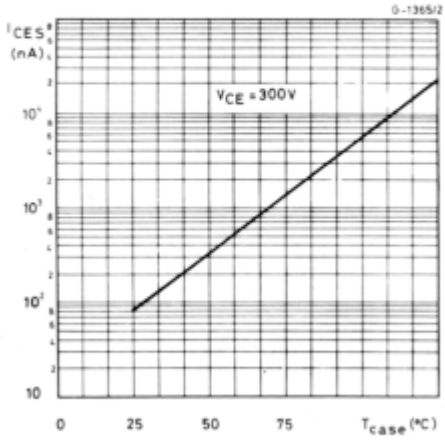
Collector-emitter saturation voltage



Base-emitter saturation voltage



Collector cutoff current



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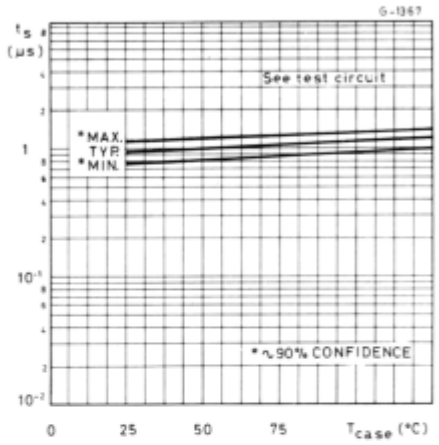
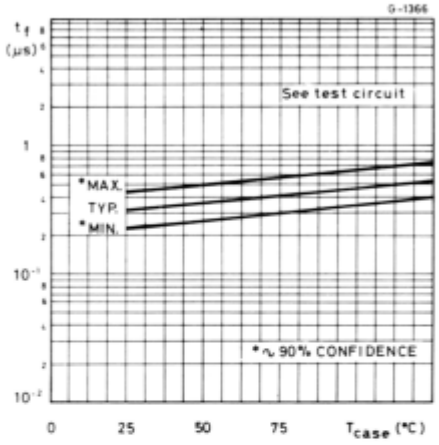
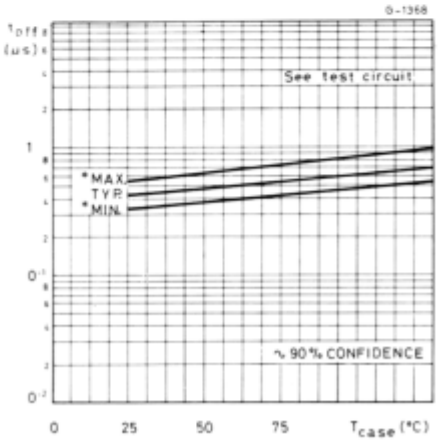
Storage time



Fall time



Turn-off time



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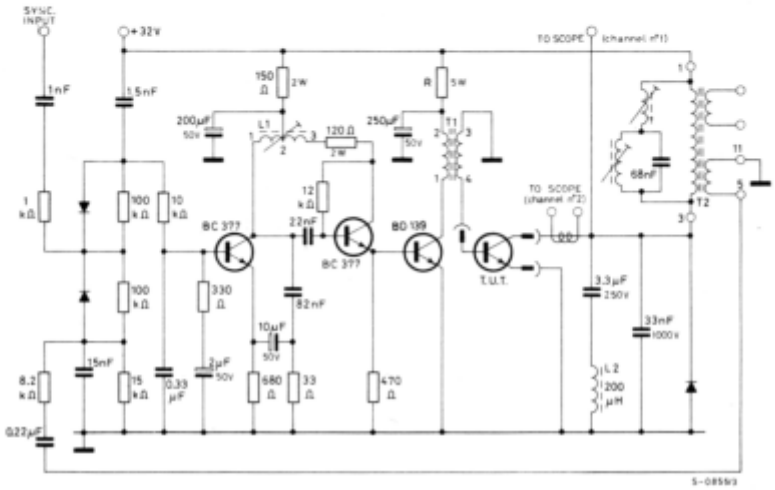
SWITCHING TIMES

Test circuit (fall, storage and turn-off time)



L1 Horizontal hold coil: Pins 1-2=75 turns ø 0.2 mm; R=1.5 Ω; L min = 0.62 mH
Pins 2-3=293 turns ø 0.2 mm; R=4.8 Ω; L max = 4.1 mH Core = siferrit B 62120 25×4×2

L2 Horizontal yoke = 200 μH

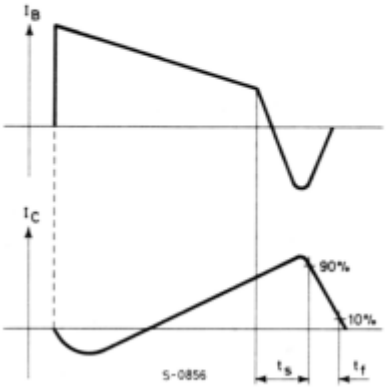
T1 Driver transformer: Pins 1-2=125 turns ø 0.2 mm;
Pins 3-4=25 turns ø 0.4 mm; Gap = 0.12 mm; Core = 3E3 double E 19×15×5

T2 EHT transformer manufacturer ARCO type 249.065/035

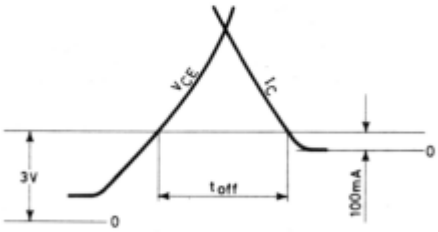
R = 330 Ω for BU406
R = 220 Ω for BU406H
R = 180 Ω for BU408

Waveforms

Fall and storage time



Turn-off time



Turn-off time is the time for the collector current I_C to decrease to 100 mA after the collector to emitter voltage V_{CE} has risen 3V into its flyback excursion

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APPLICATION INFORMATION

BU 406 - application circuit for 17'' to 24'' - 110° - 28 mm neck picture tubes