BU108
NPN SILICON POWER TRANSISTOR

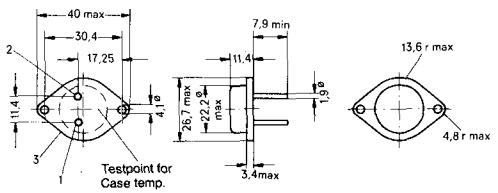
DESIGNED FOR HIGH VOLTAGE C.R.T. SCANNING

- V_{CEX} Rating – 1500 V Peak
- Collector Current Rating – 5 Amps
- Fast Switching – t_f at 4.5 Amps 0.7 Microsecond Typical

Development Type

The data presented here is of a device under development, and may be subject to change without notice. No responsibility is assumed for future manufacture of this device.

mechanical data



All dimensions are in mm

TO-3

absolute maximum ratings (T_{case} = 25 °C)

Collector-Emitter Voltage (Peak see Note 1), $-2\ V \geqslant V_{BE} \geqslant -5\ V$	1500 V
Collector-Base Voltage (Peak see Note 1)	1500 V
Emitter-Base Voltage	5 V
Continuous-Collector Current	5 A
Continuous-Base Current	3.5 A
Continuous-Emitter Current	8.5 A
Total Dissipation ($V_{CE} \leqslant 100\ V$, $T_{case} \leqslant 95\ °C$) (See Note 2)	12.5 W
Operating Junction Temperature	–65 °C to +115 °C
Storage Temperature	–65 °C to +115 °C

NOTES: 1. Pulse width $\leqslant 20\ \mu s$, duty cycle $\leqslant 25\ \%$

PRELIMINARY DATA SHEET: Supplementary data may be published at a later date.

electrical characteristics (T_{case} = 25 °C)

	PARAMETER	TEST CONDITIONS			MIN	TYP	MAX	UNIT
I_{CEX}	Collector-Emitter Leakage Current	V_{CE} = 1500 V,	V_{BE} = −2 V	See Note 3			1	mA
I_{CBO}	Collector-Base Leakage Current	V_{CB} = 1500 V,	I_C = 0	See Note 3			1	mA
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_C = 100 mA,	I_C = 0		5	7		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 4.5 A,	I_B = 2 A	See Note 4		.4	5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 4.5 A,	I_B = 2 A	See Note 4		1.1	1.3	V
t_f	Collector-Current Fall Time	I_C = 4.5 A				.7	1.2	μs
θ_{j-c}	Junction-to-Case Thermal Resistance						1.6	°C/W

NOTES: 3. Pulsed Test. Pulse duration ≤ 20 μs. Duty Cycle ≤ 25 %.
4. Pulsed Test. Pulse duration ≤ 300 μs. Duty Cycle ≤ 2 %.

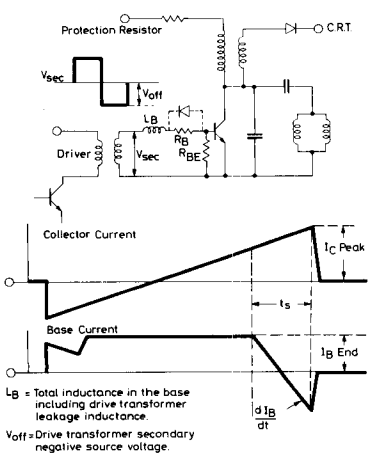


FIGURE 1

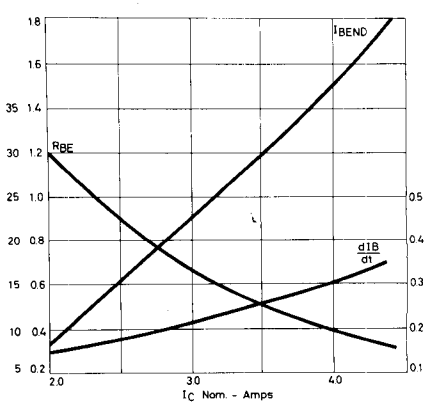


FIGURE 2

DETERMINATION OF L_B
TO OBTAIN CORRECT dI_B/dt
FOR VARIOUS VALVES OF V_{off}

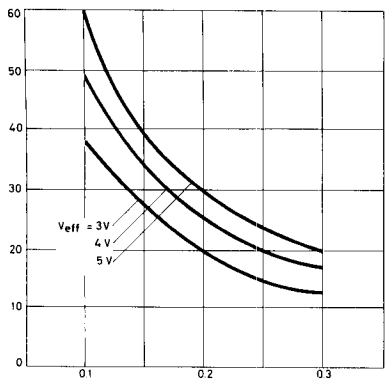


FIGURE 3

MAXIMUM DEVICE DISSIPATION
VERSES I_C PEAK (NOMINAL)
OPERATING WITH T_{CASE} = 90 °C

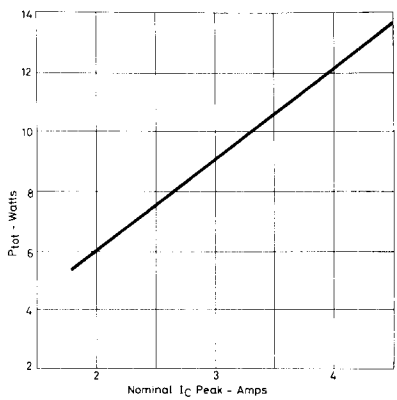


FIGURE 4

SWITCHING TIMES WHEN OPERATING IN A
LINE OUTPUT STAGE AT T_{CASE} = 90 °C

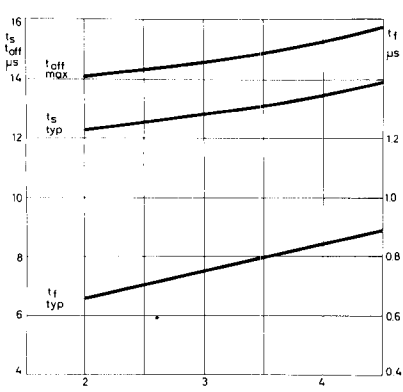


FIGURE 5

TYPICAL BASE-EMITTER VOLTAGE
UNDER RECOMMENDED DRIVE CONDITIONS

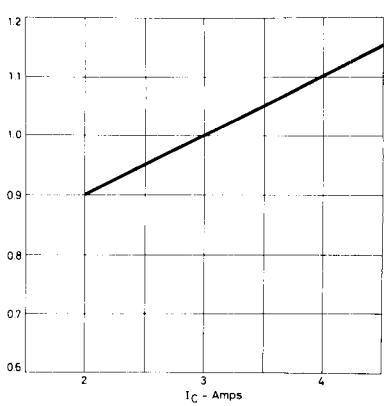


FIGURE 6

TI cannot assume any responsibility for any circuit or represent that they are free from patent infringe

TEXAS INSTRUMENTS RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME IN ORDER TO IMPROVE DESIGN AND TO SUPPLY THE BEST PRODUCT POSSIBLE.

Typ type	P_{tot} $T_A = 25\ ^oC$ (100 °C) W	$T_C = 25\ ^oC$ (100 °C) W	V_{CEO} min V	I_{CD} max A	min	h_{FE} max	@	I_C A
2N 5685	5	300	60	50	15	60		25
2N 5686	5	300	80	50	15	60		25
2N 5758	5	150	100	6	25	100		3
2N 5759	5	150	120	6	20	80		3
2N 5760	5	150	140	6	15	60		3
2N 6326	5	200	60	30	12			15
2N 6327	5	200	80	30	12			15
2N 6328	5	200	100	30	12			15

NPN-LEISTUNGSTRANSISTOREN (Hochvolt-Anwendungen)
NPN POWER TRANSISTORS (High-Voltage Applications)

Typ type	P_{tot} $T_G = 25\ ^oC$ ($T_C = 100\ ^oC$) W	V_{CEO} min V	I_{CD} max A	min	h_{FE} max	@	I_C A
BD 410	20	325	1	30	240		0,05
BD 253	50	200	4	15			1
BD 253 A	50	250	4	15			1
BD 253 B	50	300	4	15			1
BD 253 C	50	400	4	15			1
TIP 660	125	200	5	500			3
TIP 661	125	300	5	500			3
TIP 662	125	400	5	500			3
BU 105	(10)	1500	2,5				
BU 108	(12,5)	1500	5				
BU 126	50	750	6	15	60		1,0
BUY 69 A	100	1000*	10	15			1,0
BUY 69 B	100	800*	10	15			1,0
BUY 69 C	100	500*	10	15			1,0

f_T min MHz	I_{CES} @ (I_{CEO}) µA	V_{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
0,15	(1000)	30	TO-3	Verstärker, schneller Schalter
0,15	(1000)	40	TO-3	komplementär zu 2N 5683, 2N 5684
				amplifier, fast switch
				complementary to 2N 5683, 2N 5684
1	(1000)	50	TO-3	Verstärker, schneller Schalter
1	(1000)	60	TO-3	komplementär zu TIP 544, TIP 545, TIP 546
1	(1000)	70	TO-3	amplifier, fast switch
				complementary to TIP 544, TIP 545, TIP 546
3	(1000)	30	TO-3	Verstärker, schneller Schalter
3	(1000)	40	TO-3	komplementär zu 2N 6329, 2N 6330, 2N 6331
3	(1000)	50	TO-3	amplifier, fast switch
				complementary to 2N 6329, 2N 6330, 2N 6331

f_T min MHz	*I_{CEV} (I_{CEO}) I_{CES} @ mA	V_{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
15	2	35	SOT-32	NF-Endstufen in Rundf.- u. FS.-Empfängern
				$V_{CBO} > 500$ V
				for vertical outputs stages
				low-frequency final stages in broadcasting and TV receivers
				$V_{CBO} > 500$ V
15	2	350	TO-3	Netzgeräte und Inverter
15	2	500	TO-3	Power supply and inverter
15	2	700	TO-3	
15	2	900	TO-3	
	(2)	100	TO-3	Verstärker, Schalter, Anwendung in Netzgeräten.
	(2)	200	TO-3	Hochvoltanwendung
	(2)	300	TO-3	amplifier, switch, power supply
				high voltage
	1	1500	TO-3	Fernsehanwendung, Horizontal-Ablenkendstufen
	(1)	1500	TO-3	Schnelle Schalteranwendung bei hohen Strömen
				t_T typ. 400 ns bei $I_C = 8$ A
				TV applications, horizontal-deflection output stage
				high-speed switching applications at high currens
				t_T typ. 400 ns @ $I_C = 8$ A
10	0,005	600	TO-3	Für Schalteranwendungen und Netzgeräte
				switch, power supply
	(1)	1000	TO-3	Für Schalteranwendungen
	(1)	800	TO-3	switching applications
	(1)	500	TO-3	