
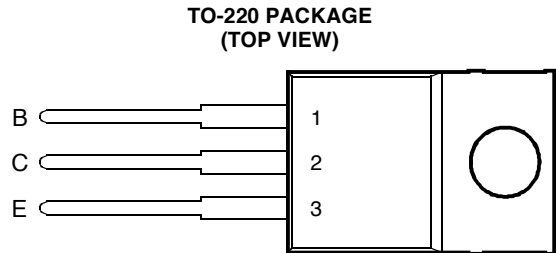


- 7 A Continuous Collector Current
- 15 A Peak Collector Current
- 60 W at 25°C Case Temperature

 This series is obsolete and not recommended for new designs.



Pin 2 is in electrical contact with the mounting base.

MDTRACA

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage ($I_E = 0$)	BU406	V_{CBO}	400	V
	BU407		330	
Collector-emitter voltage ($V_{BE} = -2$ V)	BU406	V_{CEX}	400	V
	BU407		330	
Collector-emitter voltage ($I_B = 0$)	BU406	V_{CEO}	200	V
	BU407		150	
Emitter-base voltage		V_{EB}	6	V
Continuous collector current		I_C	7	A
Peak collector current (see Note 1)		I_{CM}	15	A
Continuous base current		I_B	4	A
Continuous device dissipation at (or below) 25°C case temperature		P_{tot}	60	W
Operating junction temperature range		T_j	-55 to +150	°C
Storage temperature range		T_{stg}	-55 to +150	°C

NOTE 1: This value applies for $t_p \leq 10$ ms, duty cycle $\leq 2\%$.

PRODUCT INFORMATION

AUGUST 1978 - REVISED SEPTEMBER 2002
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electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$ Collector-emitter breakdown voltage	$I_C = 30 \text{ mA}$ $I_B = 0$	140			V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 400 \text{ V}$ $V_{BE} = 0$ BU406			5	mA
	$V_{CE} = 330 \text{ V}$ $V_{BE} = 0$ BU407			5	
	$V_{CE} = 250 \text{ V}$ $V_{BE} = 0$ BU406			0.1	
	$V_{CE} = 200 \text{ V}$ $V_{BE} = 0$ BU407			0.1	
	$V_{CE} = 250 \text{ V}$ $V_{BE} = 0$ $T_C = 150^\circ\text{C}$ BU406			1	
	$V_{CE} = 200 \text{ V}$ $V_{BE} = 0$ $T_C = 150^\circ\text{C}$ BU407			1	
I_{EBO} Emitter cut-off current	$V_{EB} = 6 \text{ V}$ $I_C = 0$			1	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 10 \text{ V}$ $I_C = 4 \text{ A}$ (see Notes 2 and 3)	12			
	$V_{CE} = 10 \text{ V}$ $I_C = 0.5 \text{ A}$	20			
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 0.5 \text{ A}$ $I_C = 5 \text{ A}$ (see Notes 2 and 3)			1	V
$V_{BE(sat)}$ Base-emitter saturation voltage	$I_B = 0.5 \text{ A}$ $I_C = 5 \text{ A}$ (see Notes 2 and 3)			1.2	V
f_t Current gain bandwidth product	$V_{CE} = 5 \text{ V}$ $I_C = 0.5 \text{ A}$ $f = 1 \text{ MHz}$ (see Note 4)		6		MHz
C_{ob} Output capacitance	$V_{CB} = 20 \text{ V}$ $I_E = 0$ $f = 1 \text{ MHz}$		60		pF

- NOTES: 2. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.
 3. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.
 4. To obtain f_t the $[h_{FE}]$ response is extrapolated at the rate of -6 dB per octave from $f = 1 \text{ MHz}$ to the frequency at which $[h_{FE}] = 1$.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			2.08	°C/W
$R_{\theta JA}$ Junction to free air thermal resistance			70	°C/W

inductive-load-switching characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
t_s Storage time	$I_C = 5 \text{ A}$ $I_{B(end)} = 0.5 \text{ A}$ (see Figures 1 and 2)		2.7		μs
$t_{(off)}$ Turn off time				750	ns

† Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

PARAMETER MEASUREMENT INFORMATION

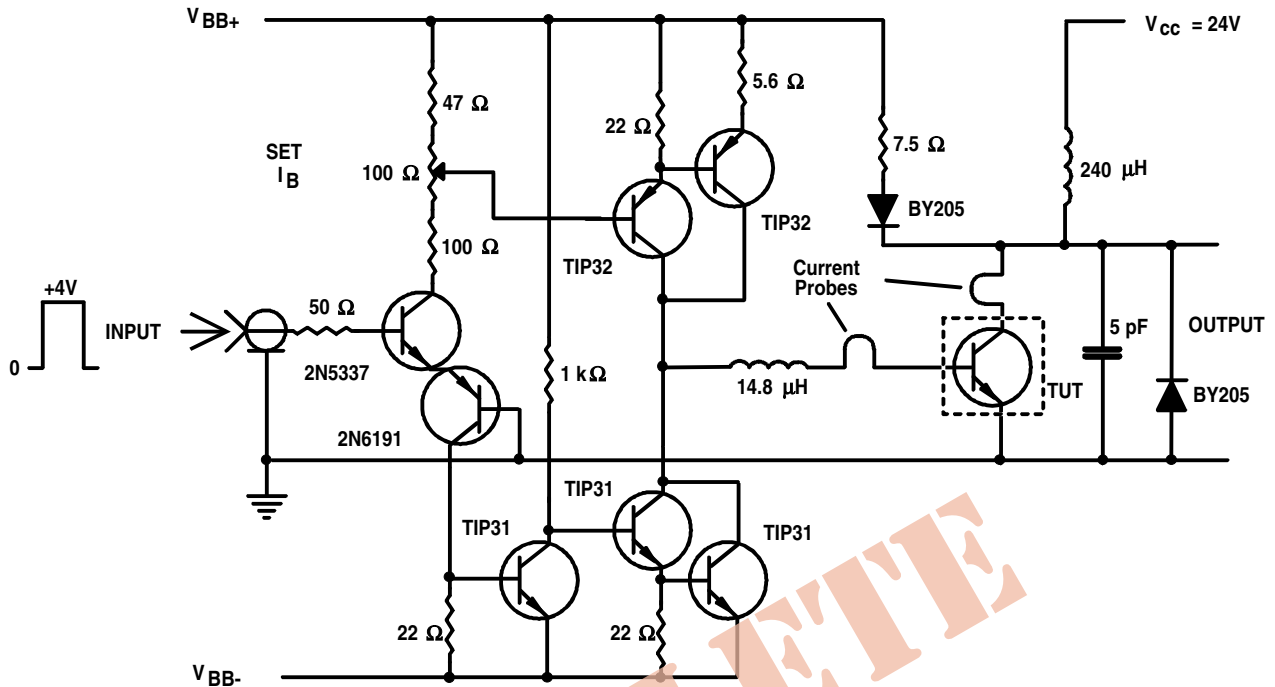
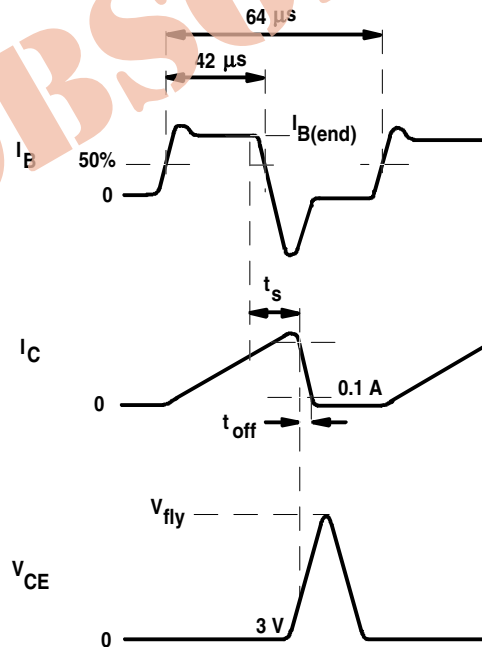


Figure 1. Inductive-Load Switching Test Circuit



t_{off} is the time for the collector current I_C to decrease to 0.1 A after the collector to emitter voltage V_{CE} has risen 3 V into its flyback excursion.

Figure 2. Inductive-Load Switching Waveforms

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TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN
VS
COLLECTOR CURRENT

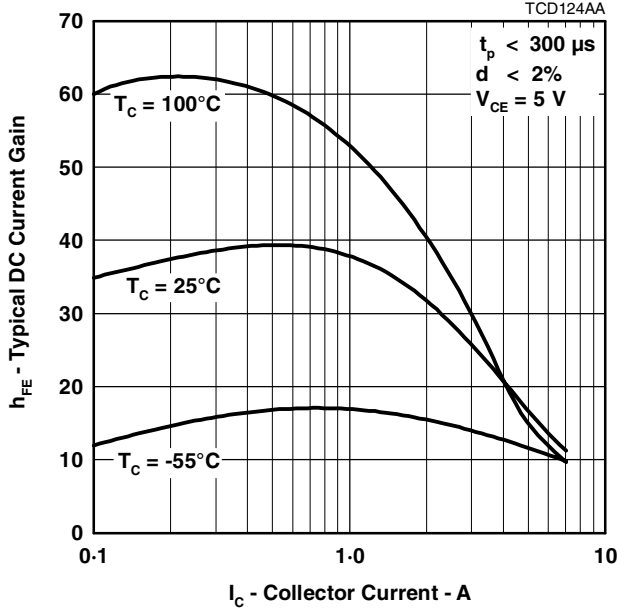


Figure 3.

TYPICAL DC CURRENT GAIN
VS
COLLECTOR CURRENT

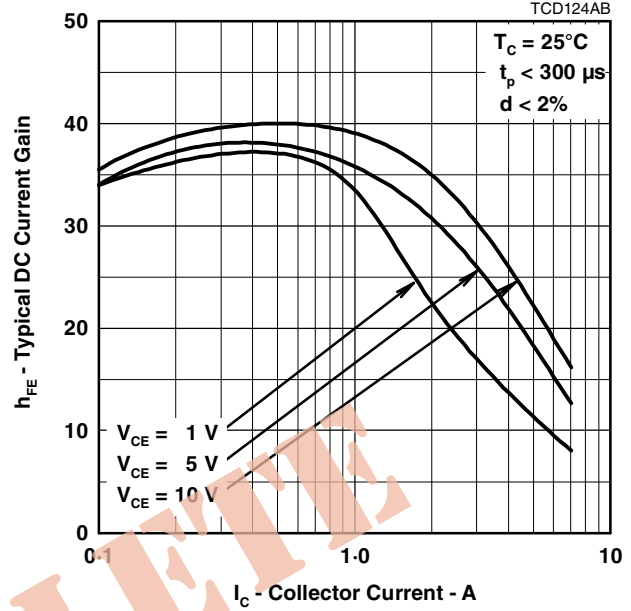


Figure 4.

COLLECTOR-EMITTER SATURATION VOLTAGE
VS
CASE TEMPERATURE

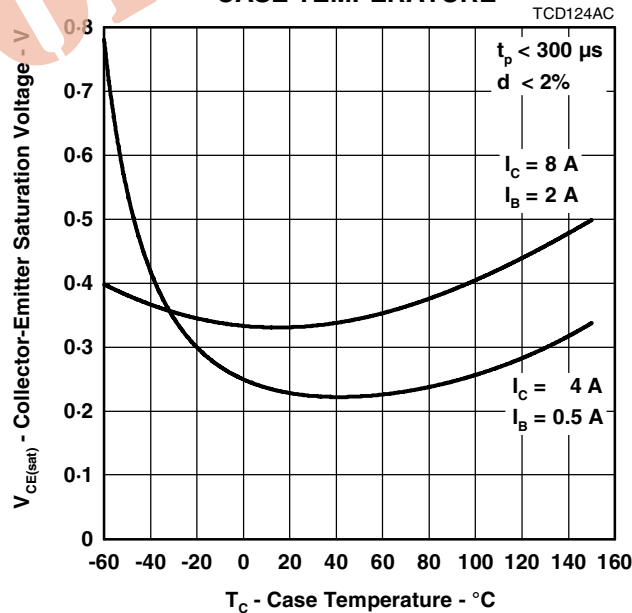


Figure 5.

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MAXIMUM SAFE OPERATING REGIONS

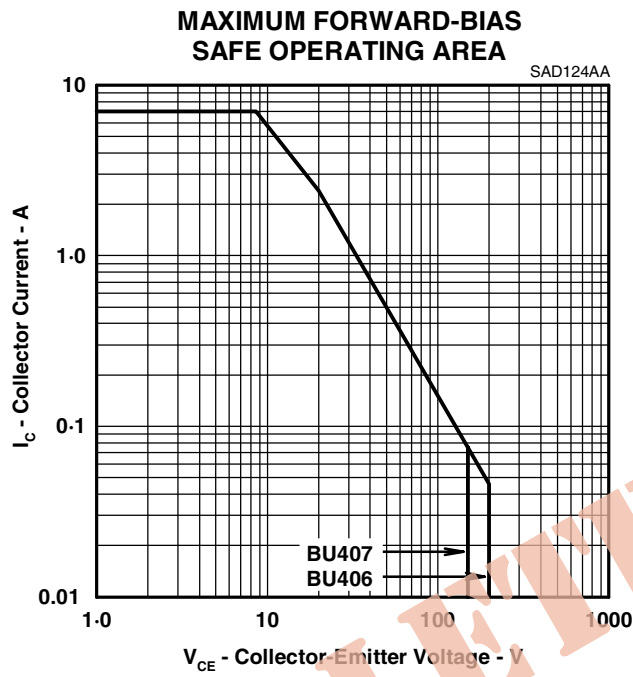


Figure 6.

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