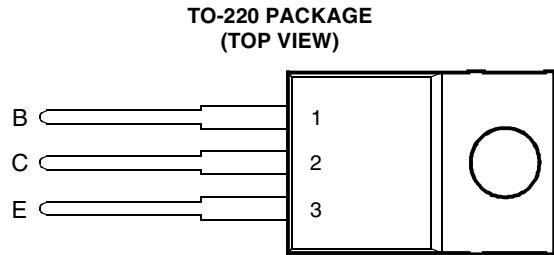


- 7 A Continuous Collector Current
- 15 A Peak Collector Current
- 60 W at 25°C Case Temperature



Pin 2 is in electrical contact with the mounting base.

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

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage ( $I_E = 0$ )	BU406 BU407	$V_{CB0}$	400 330	V
Collector-emitter voltage ( $V_{BE} = -2$ V)	BU406 BU407	$V_{CEX}$	400 330	V
Collector-emitter voltage ( $I_B = 0$ )	BU406 BU407	$V_{CEO}$	200 150	V
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**

**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**

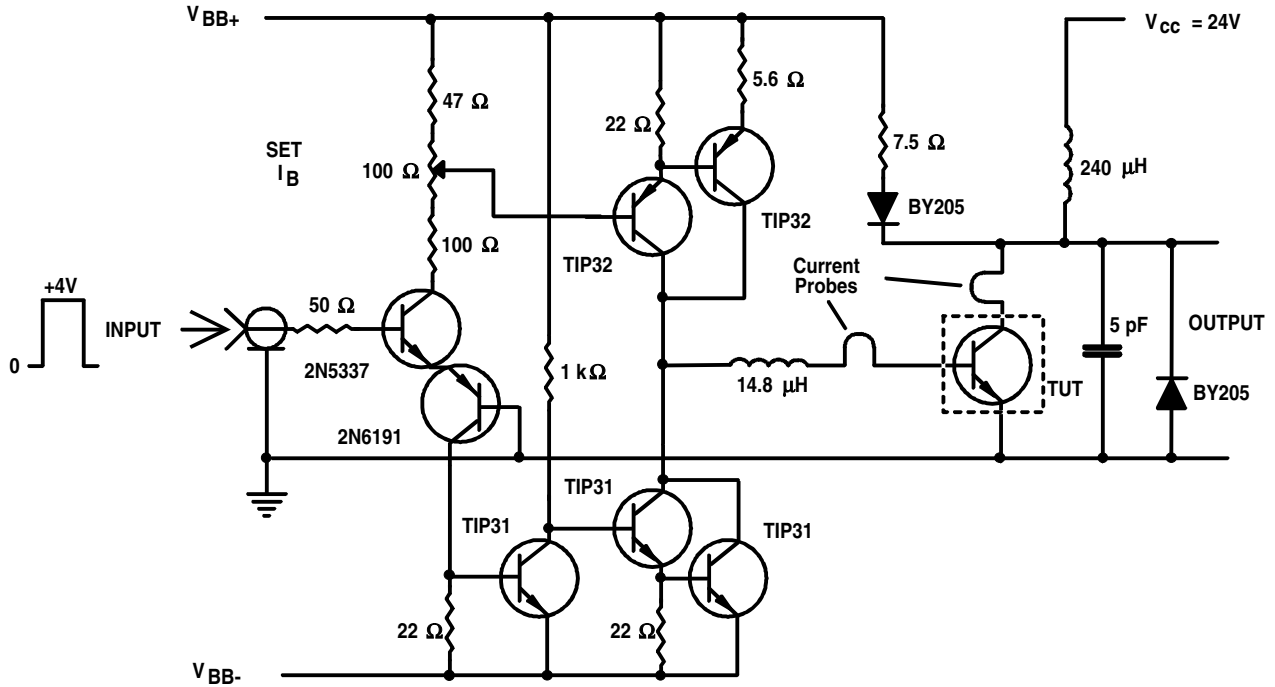
PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			2.08	$^\circ\text{C/W}$
$R_{\theta JA}$ Junction to free air thermal resistance			70	$^\circ\text{C/W}$

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

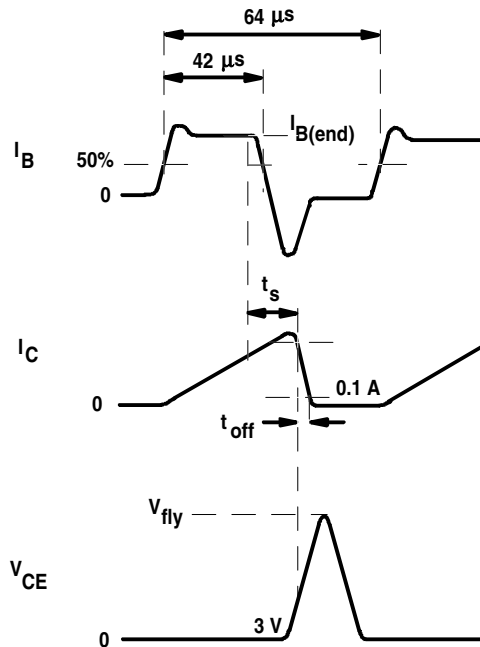
PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
$t_s$ Storage time	$I_C = 5 \text{ A}$ $I_{B(end)} = 0.5\text{A}$ (see Figures 1 and 2)		2.7		$\mu\text{s}$
$t_{(off)}$ Turn off time				750	ns

† 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**

**PRODUCT INFORMATION**

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TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN  
VS  
COLLECTOR CURRENT

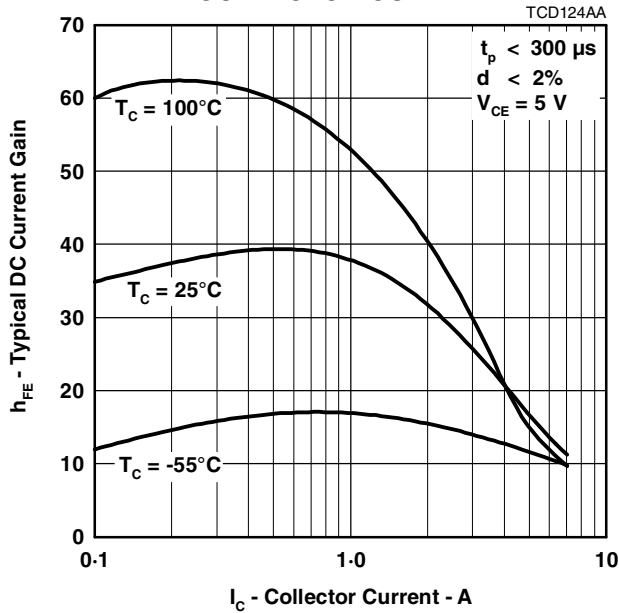


Figure 3.

TYPICAL DC CURRENT GAIN  
VS  
COLLECTOR CURRENT

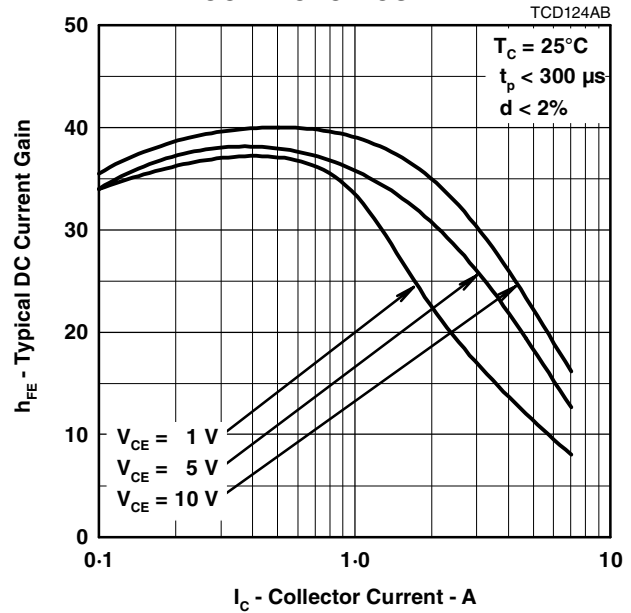


Figure 4.

COLLECTOR-EMITTER SATURATION VOLTAGE  
VS  
CASE TEMPERATURE

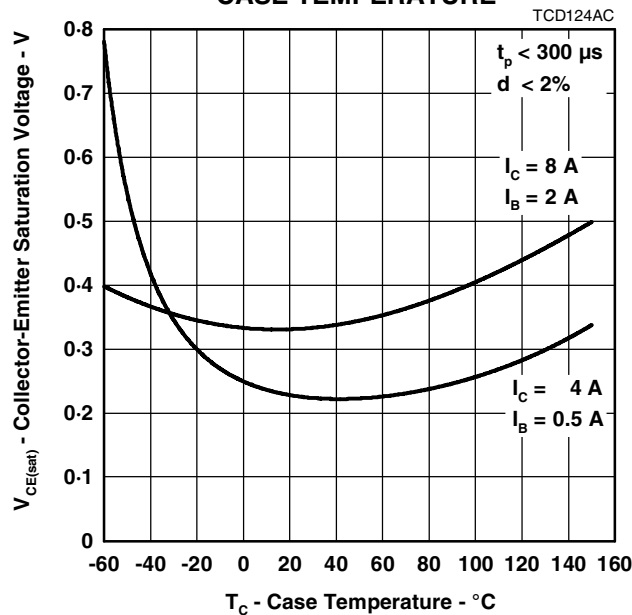
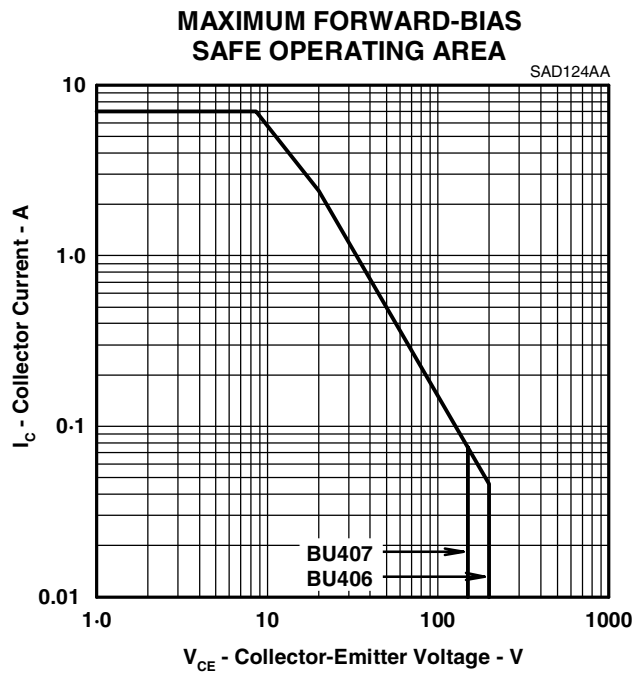


Figure 5.

**PRODUCT INFORMATION**

**MAXIMUM SAFE OPERATING REGIONS**



**Figure 6.**

**PRODUCT INFORMATION**

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