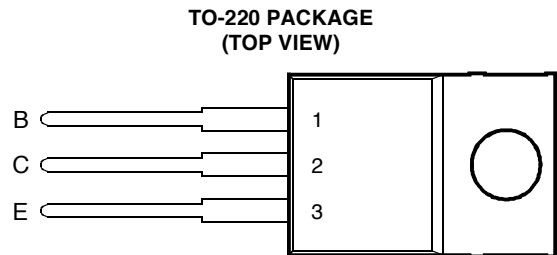


- Rugged Triple-Diffused Planar Construction
- 100 W at 25°C Case Temperature
- 5 A Continuous Collector Current



This series is $\text{Sd } \text{M}\&\text{R}_U$ 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 ($I_E = 0$)	V_{CB0}	850	V
Collector-emitter voltage ($V_{BE} = 0$)	V_{CES}	850	V
Collector-emitter voltage ($I_B = 0$)	V_{CEO}	400	V
Emitter-base voltage	V_{EB0}	10	V
Continuous collector current	I_C	5	A
Peak collector current (see Note 1)	I_{CM}	10	A
Continuous device dissipation at (or below) 25°C case temperature	P_{tot}	100	W
Operating junction temperature range	T_j	-65 to +150	°C
Storage temperature range	T_{stg}	-65 to +150	°C

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

OBSOLETE

PRODUCT INFORMATION

MAY 1989 - REVISED SEPTEMBER 2002
Specifications are subject to change without notice.

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{CE(sus)}$ Collector-emitter sustaining voltage	$I_C = 0.1\text{ A}$ $L = 25\text{ mH}$ (see Note 2)	400			V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 850\text{ V}$ $V_{BE} = 0$ $V_{CE} = 850\text{ V}$ $V_{BE} = 0$ $T_C = 125^\circ\text{C}$			50 500	μA
I_{EBO} Emitter cut-off current	$V_{EB} = 10\text{ V}$ $I_C = 0$			1	mA
h_{FE} Forward current transfer ratio	$V_{CE} = 5\text{ V}$ $I_C = 0.5\text{ A}$ (see Notes 3 and 4)	20		60	
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 0.6\text{ A}$ $I_C = 3\text{ A}$ (see Notes 3 and 4)			1.5	V
$V_{BE(sat)}$ Base-emitter saturation voltage	$I_B = 0.6\text{ A}$ $I_C = 3\text{ A}$ (see Notes 3 and 4)			1.3	V
f_t Current gain bandwidth product	$V_{CE} = 10\text{ V}$ $I_C = 0.5\text{ A}$ $f = 1\text{ MHz}$		12		MHz
C_{ob} Output capacitance	$V_{CB} = 20\text{ V}$ $I_E = 0$ $f = 0.1\text{ MHz}$		110		pF

- NOTES: 2. Inductive loop switching measurement.
3. These parameters must be measured using pulse techniques, $t_p = 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
4. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1.25	$^\circ\text{C/W}$

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

PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
t_{sv} Voltage storage time	$I_C = 3\text{ A}$ $I_{B(on)} = 0.6\text{ A}$ $V_{BE(off)} = -5\text{ V}$			1.4	μs
t_{fi} Current fall time	$V_{CC} = 50\text{ V}$ (see Figures 1 and 2)			150	ns
t_{sv} Voltage storage time	$I_C = 3\text{ A}$ $I_{B(on)} = 0.6\text{ A}$ $V_{BE(off)} = -5\text{ V}$			1.5	μs
t_{fi} Current fall time	$V_{CC} = 50\text{ V}$ $T_C = 100^\circ\text{C}$			300	ns

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

PARAMETER MEASUREMENT INFORMATION

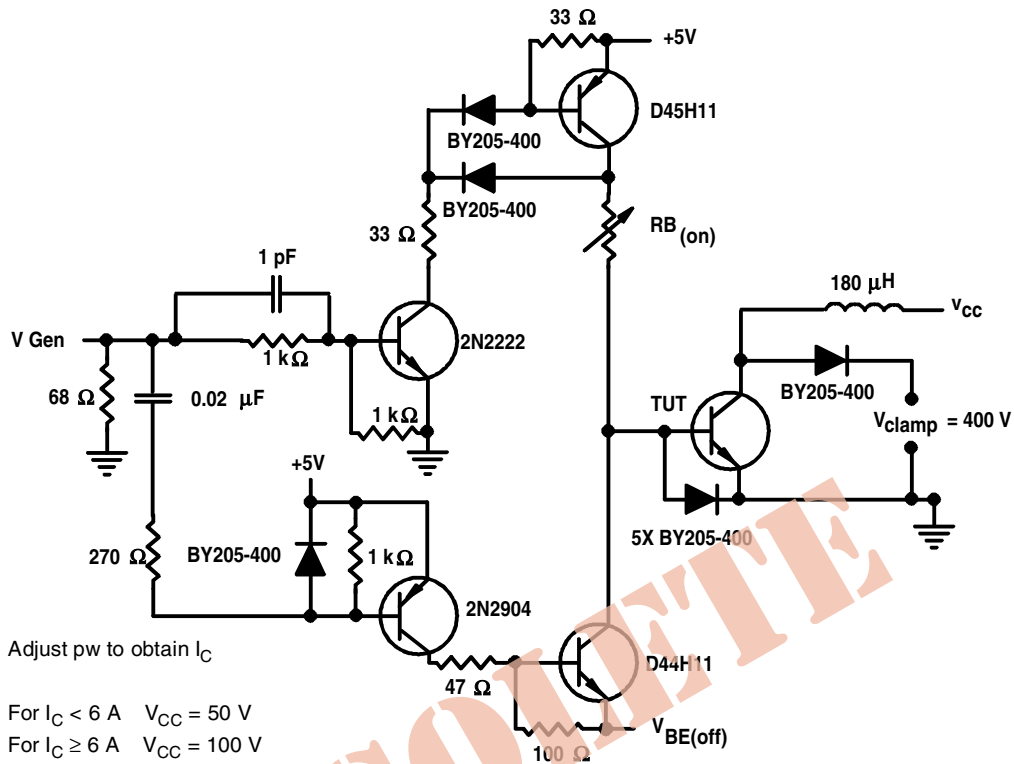
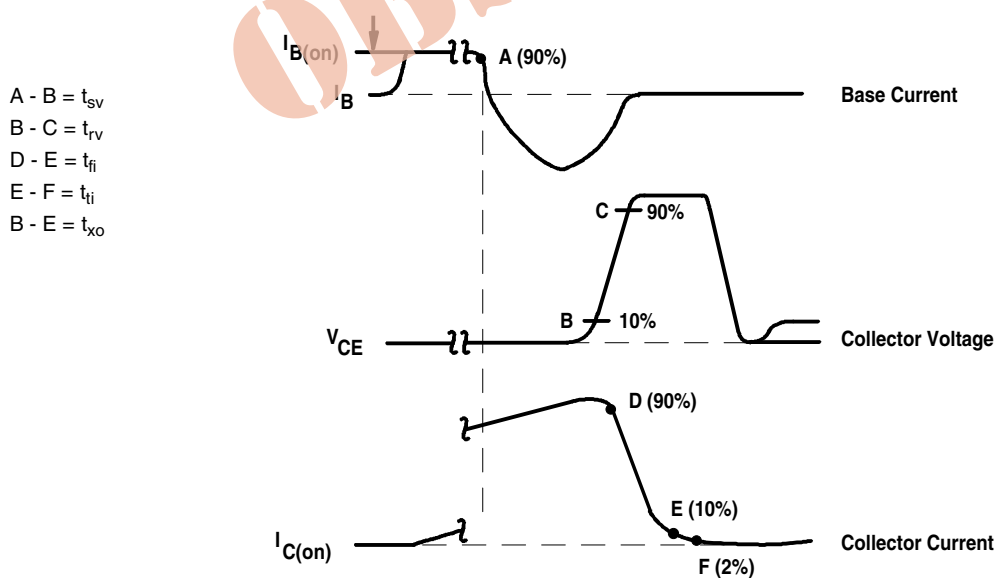


Figure 1. Inductive-Load Switching Test Circuit



NOTES: A. Waveforms are monitored on an oscilloscope with the following characteristics: $t_r < 15 \text{ ns}$, $R_{in} > 10 \Omega$, $C_{in} < 11.5 \text{ pF}$.
 B. Resistors must be noninductive types.

Figure 2. Inductive-Load Switching Waveforms

PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS

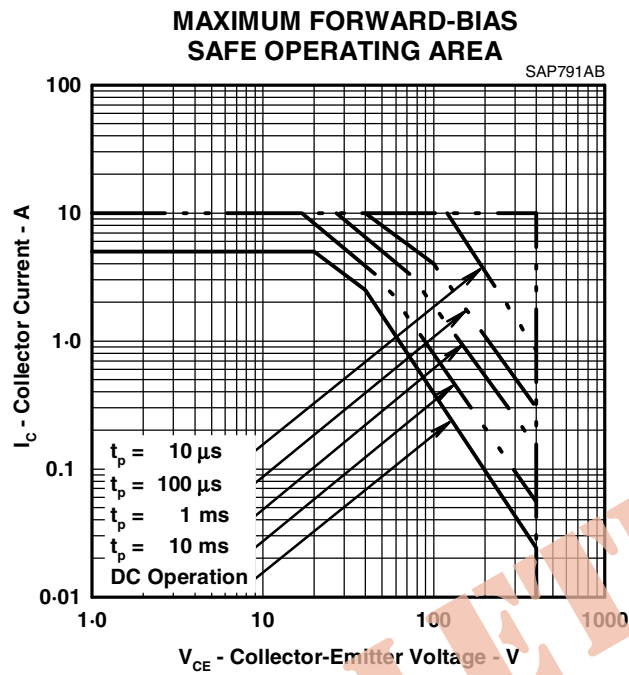


Figure 3.