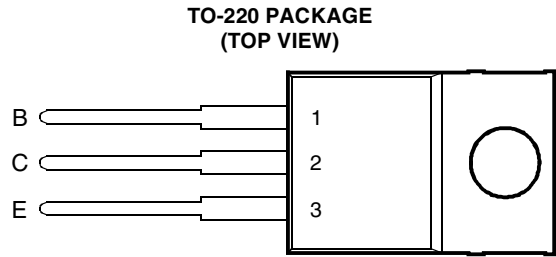


- Rugged Triple-Diffused Planar Construction
- 4 A Continuous Collector Current
- Operating Characteristics Fully Guaranteed at 100°C
- 1000 Volt Blocking Capability
- 75 W at 25°C Case Temperature



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 ($I_E = 0$)	TIPL760	V_{CB0}	850	V
	TIPL760A		1000	
Collector-emitter voltage ($V_{BE} = 0$)	TIPL760	V_{CES}	850	V
	TIPL760A		1000	
Collector-emitter voltage ($I_B = 0$)	TIPL760	V_{CEO}	400	V
	TIPL760A		450	
Emitter-base voltage		V_{EBO}	10	V
Continuous collector current		I_C	4	A
Peak collector current (see Note 1)		I_{CM}	8	A
Continuous device dissipation at (or below) 25°C case temperature		P_{tot}	75	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 $\leq 2\%$.

PRODUCT INFORMATION

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

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{CE(sus)}$ Collector-emitter sustaining voltage	$I_C = 10\text{ mA}$ $L = 25\text{ mH}$ (see Note 2) TIPL760 TIPL760A	400 450			V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 850\text{ V}$ $V_{BE} = 0$ TIPL760			50	μA
	$V_{CE} = 1000\text{ V}$ $V_{BE} = 0$ TIPL760A			50	
	$V_{CE} = 850\text{ V}$ $V_{BE} = 0$ $T_C = 100^\circ\text{C}$ TIPL760			200	
	$V_{CE} = 1000\text{ V}$ $V_{BE} = 0$ $T_C = 100^\circ\text{C}$ TIPL760A			200	
I_{CEO} Collector cut-off current	$V_{CE} = 400\text{ V}$ $I_B = 0$ TIPL760			50	μA
	$V_{CE} = 450\text{ V}$ $I_B = 0$ TIPL760A			50	
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	$I_B = 0.5\text{ A}$ $I_C = 2.5\text{ A}$ TIPL760			1.0	V
	$I_B = 0.8\text{ A}$ $I_C = 4\text{ A}$ (see Notes 3 and 4) TIPL760A			2.5	
	$I_B = 0.8\text{ A}$ $I_C = 4\text{ A}$ $T_C = 100^\circ\text{C}$ TIPL760A			5.0	
$V_{BE(sat)}$ Base-emitter saturation voltage	$I_B = 0.5\text{ A}$ $I_C = 2.5\text{ A}$ TIPL760			1.2	V
	$I_B = 0.8\text{ A}$ $I_C = 4\text{ A}$ (see Notes 3 and 4) TIPL760A			1.4	
	$I_B = 0.8\text{ A}$ $I_C = 4\text{ A}$ $T_C = 100^\circ\text{C}$ TIPL760A			1.3	
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			1.56	$^\circ\text{C/W}$

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

PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
t_{sv} Voltage storage time	$I_C = 4\text{ A}$ $I_{B(on)} = 0.8\text{ A}$ (see Figures 1 and 2) $V_{BE(off)} = -5\text{ V}$			2.5	μs
t_{rv} Voltage rise time				300	ns
t_{fi} Current fall time				250	ns
t_{ti} Current tail time				150	ns
t_{xo} Cross over time				400	ns
t_{sv} Voltage storage time	$I_C = 4\text{ A}$ $I_{B(on)} = 0.8\text{ A}$ (see Figures 1 and 2) $V_{BE(off)} = -5\text{ V}$ $T_C = 100^\circ\text{C}$			3	μs
t_{rv} Voltage rise time				500	ns
t_{fi} Current fall time				250	ns
t_{ti} Current tail time				150	ns
t_{xo} Cross over time				750	ns

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

PARAMETER MEASUREMENT INFORMATION

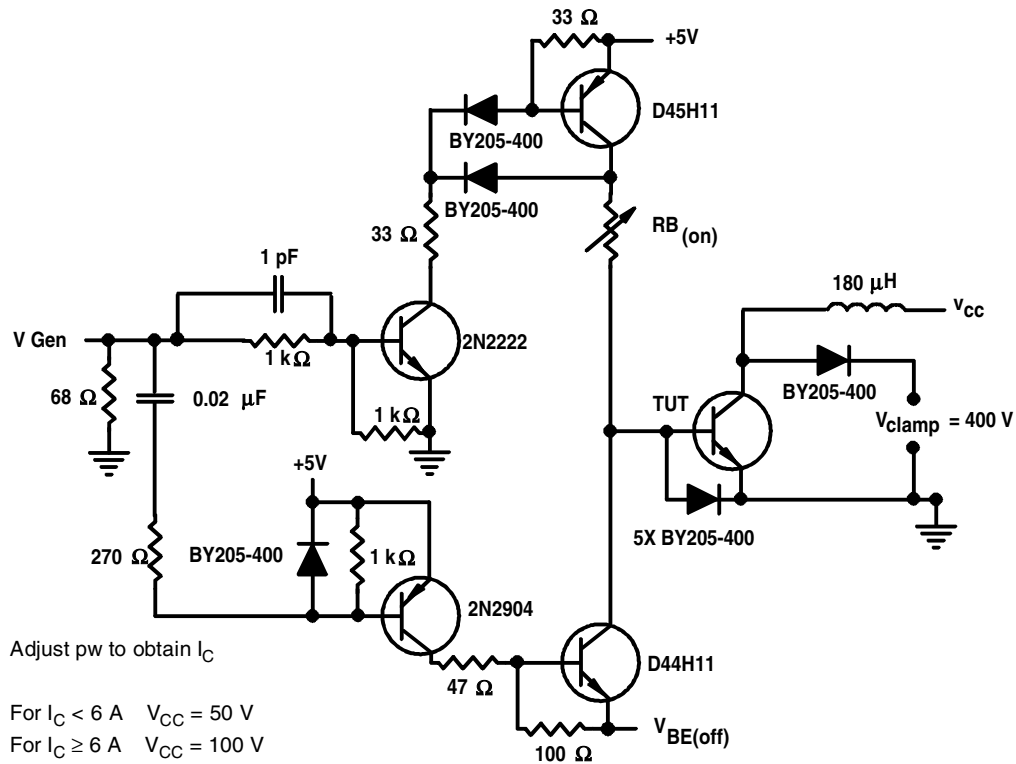
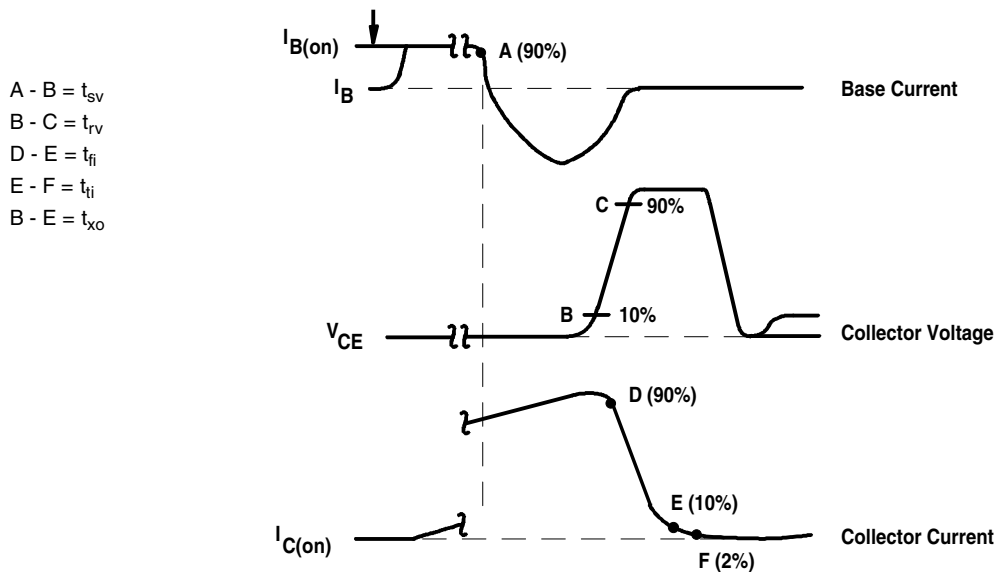


Figure 1. Inductive-Load Switching Test Circuit



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

TYPICAL CHARACTERISTICS

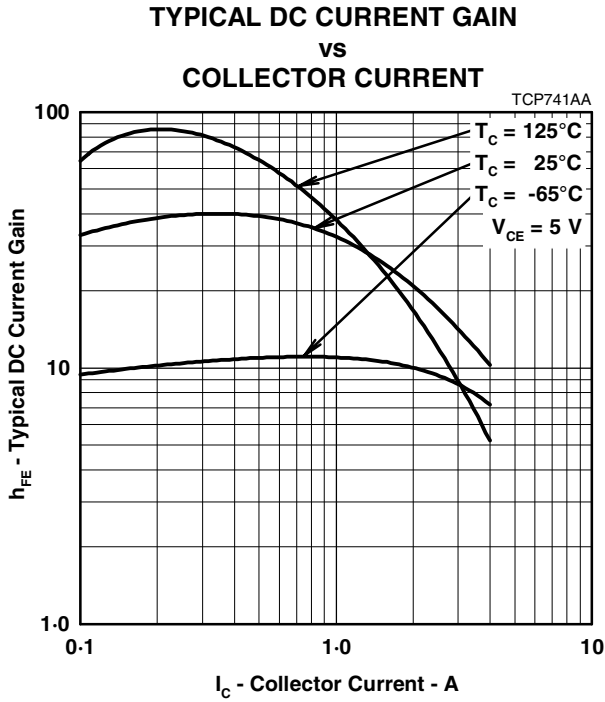


Figure 3.

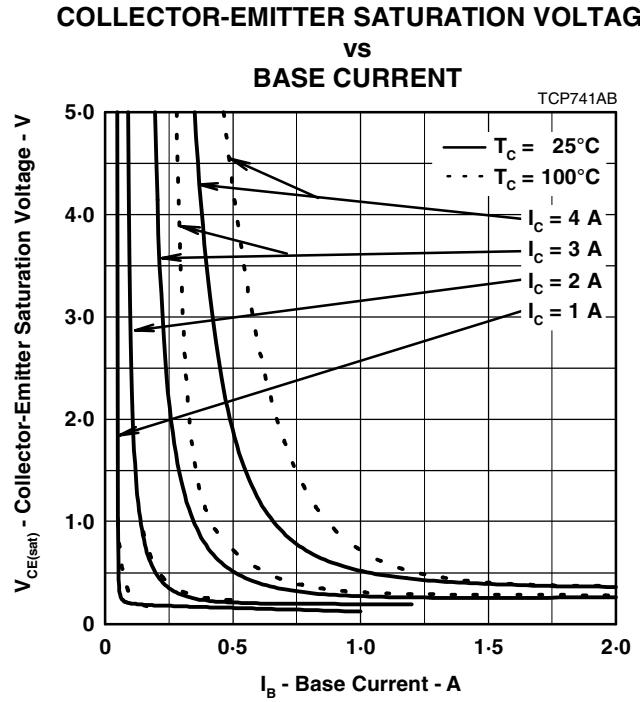


Figure 4.

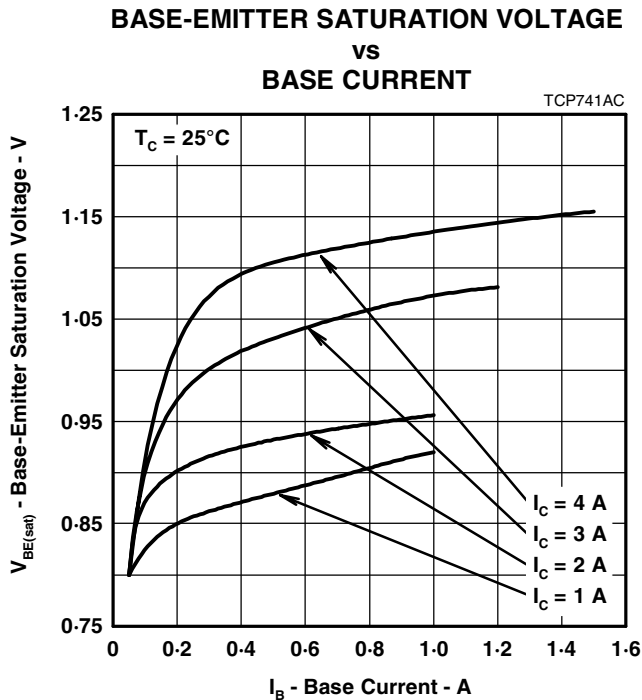


Figure 5.

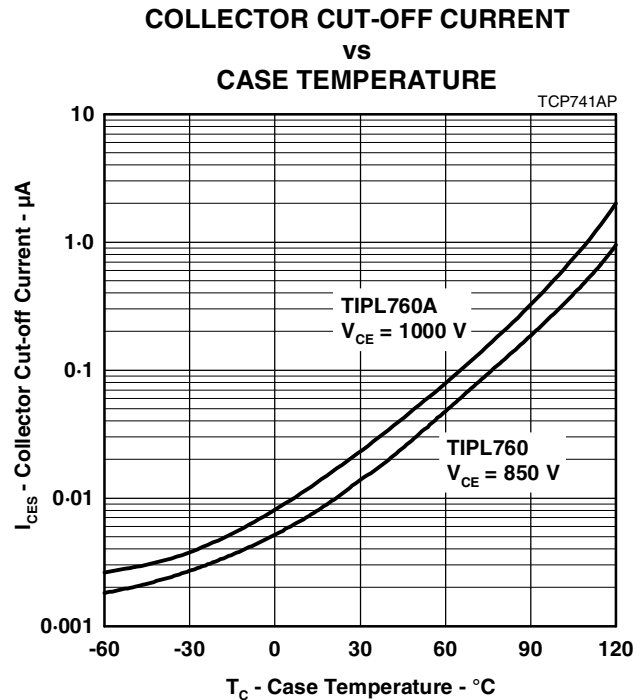


Figure 6.

PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS

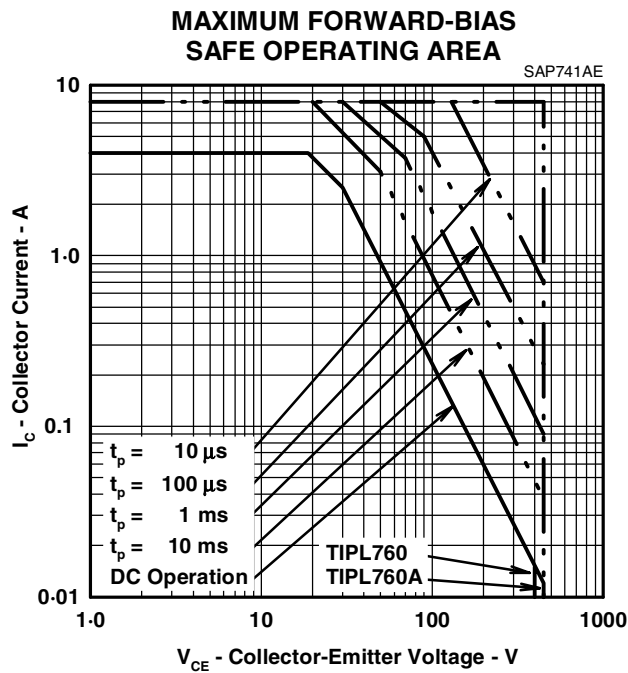


Figure 7.

THERMAL INFORMATION

**THERMAL RESPONSE JUNCTION TO CASE
VS
POWER PULSE DURATION**

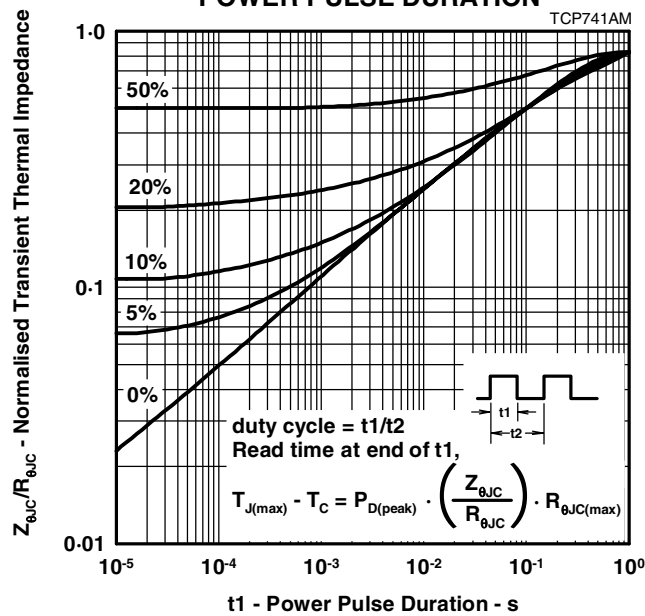


Figure 8.

PRODUCT INFORMATION

AUGUST 1978 - REVISED SEPTEMBER 2002
Specifications are subject to change without notice.