

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS					
Collector–Emitter Sustaining Voltage (Note 2) (I _C = 30 mAdc, I _B = 0)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	V _{CEO(sus)}	40 60 80 100	– – – –	Vdc
Collector Cutoff Current (V _{CE} = 30 Vdc, I _B = 0) (V _{CE} = 60 Vdc, I _B = 0)	TIP41, TIP41A, TIP42, TIP42A TIP41B, TIP41C, TIP42B, TIP42C	I _{CEO}	– –	0.7 0.7	mAdc
Collector Cutoff Current (V _{CE} = 40 Vdc, V _{EB} = 0) (V _{CE} = 60 Vdc, V _{EB} = 0) (V _{CE} = 80 Vdc, V _{EB} = 0) (V _{CE} = 100 Vdc, V _{EB} = 0)	TIP41, TIP42 TIP41A, TIP42A TIP41B, TIP42B TIP41C, TIP42C	I _{CES}	– – – –	400 400 400 400	μAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)		I _{EBO}	–	1.0	mAdc

ON CHARACTERISTICS (Note 2)

DC Current Gain (I _C = 0.3 Adc, V _{CE} = 4.0 Vdc) (I _C = 3.0 Adc, V _{CE} = 4.0 Vdc)	h _{FE}	30 15	– 75	–
Collector–Emitter Saturation Voltage (I _C = 6.0 Adc, I _B = 600 mAdc)	V _{CE(sat)}	–	1.5	Vdc
Base–Emitter On Voltage (I _C = 6.0 Adc, V _{CE} = 4.0 Vdc)	V _{BE(on)}	–	2.0	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 500 mAdc, V _{CE} = 10 Vdc, f _{test} = 1.0 MHz)	f _T	3.0	–	MHz
Small–Signal Current Gain (I _C = 0.5 Adc, V _{CE} = 10 Vdc, f = 1.0 kHz)	h _{fe}	20	–	–

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping
TIP41	TO–220	50 Units / Rail
TIP41G	TO–220 (Pb–Free)	50 Units / Rail
TIP41A	TO–220	50 Units / Rail
TIP41AG	TO–220 (Pb–Free)	50 Units / Rail
TIP41B	TO–220	50 Units / Rail
TIP41BG	TO–220 (Pb–Free)	50 Units / Rail
TIP41C	TO–220	50 Units / Rail
TIP41CG	TO–220 (Pb–Free)	50 Units / Rail
TIP42	TO–220	50 Units / Rail
TIP42G	TO–220 (Pb–Free)	50 Units / Rail
TIP42A	TO–220	50 Units / Rail
TIP42AG	TO–220 (Pb–Free)	50 Units / Rail
TIP42B	TO–220	50 Units / Rail
TIP42BG	TO–220 (Pb–Free)	50 Units / Rail
TIP42C	TO–220	50 Units / Rail
TIP42CG	TO–220 (Pb–Free)	50 Units / Rail

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

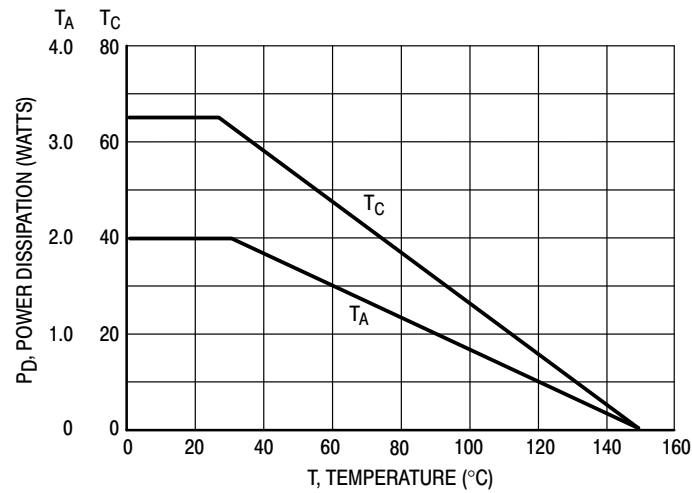


Figure 1. Power Derating

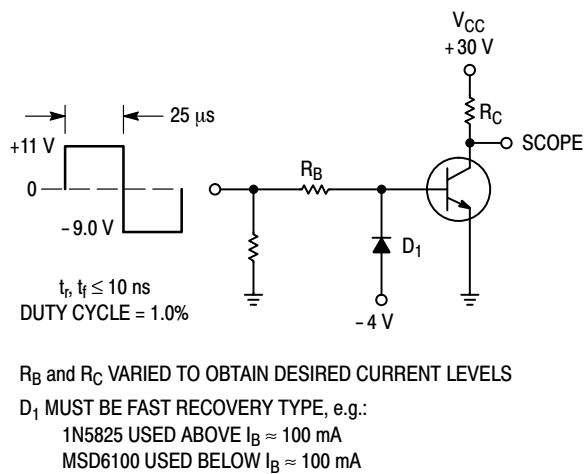


Figure 2. Switching Time Test Circuit

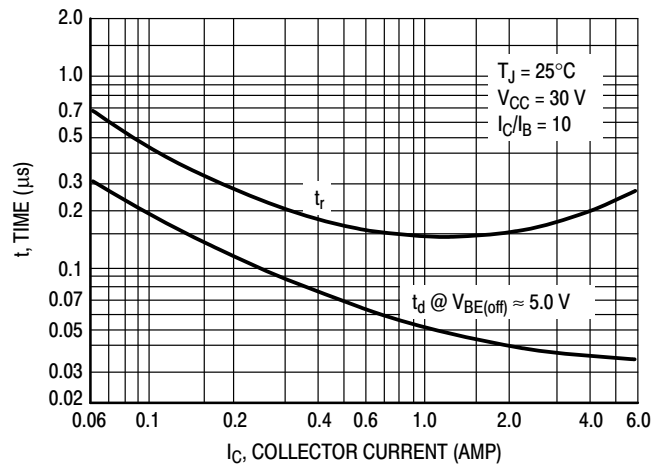


Figure 3. Turn-On Time

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

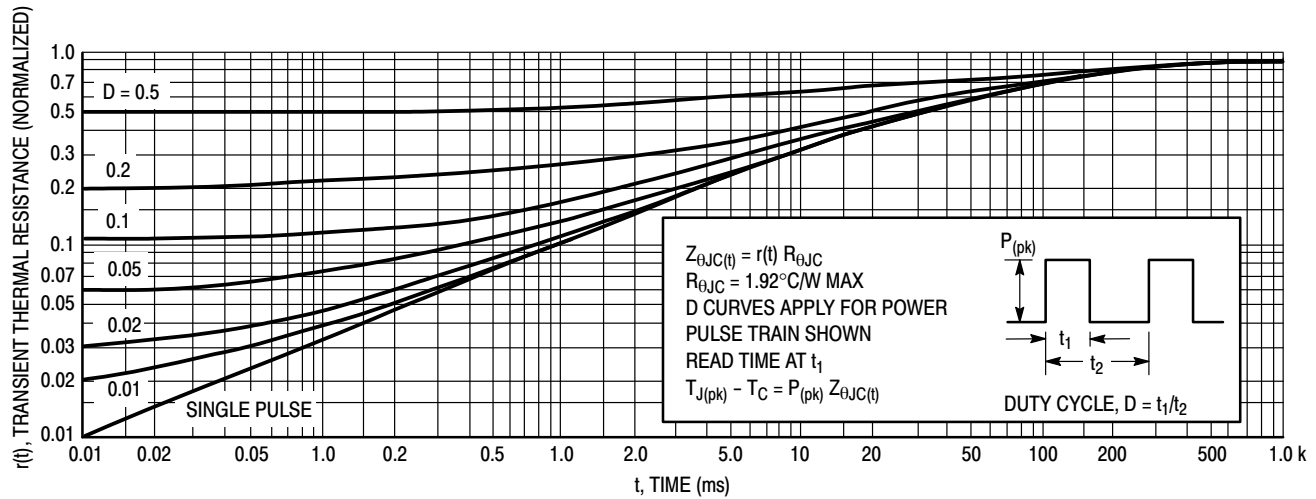


Figure 4. Thermal Response

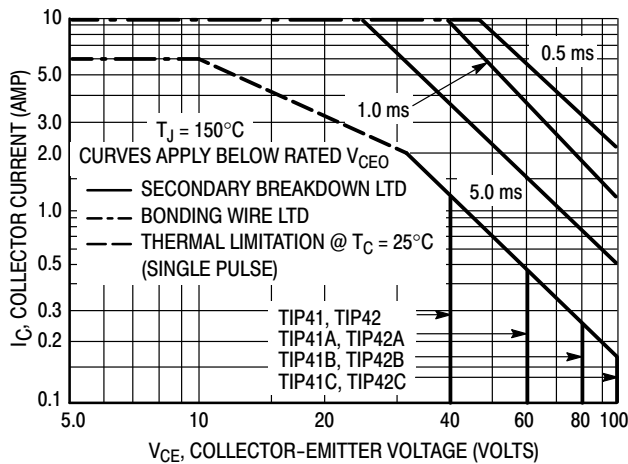


Figure 5. Active-Region Safe Operating Area

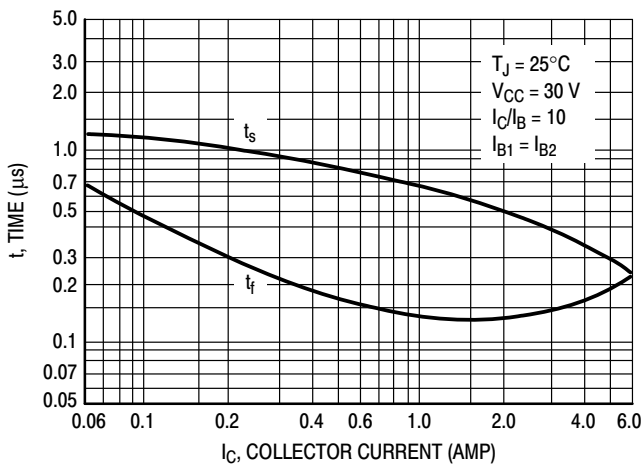


Figure 6. Turn-Off Time

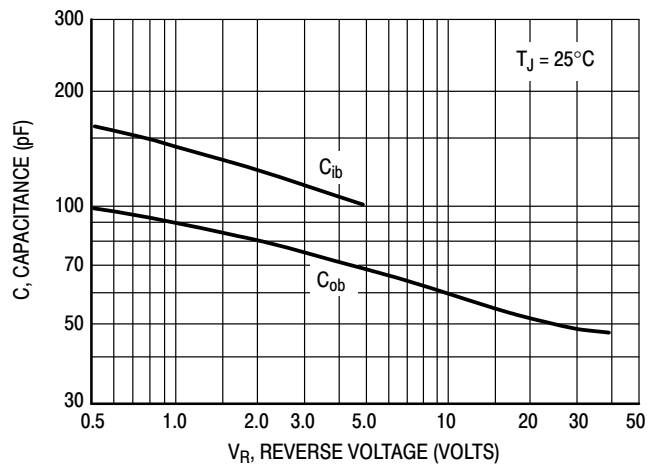


Figure 7. Capacitance

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

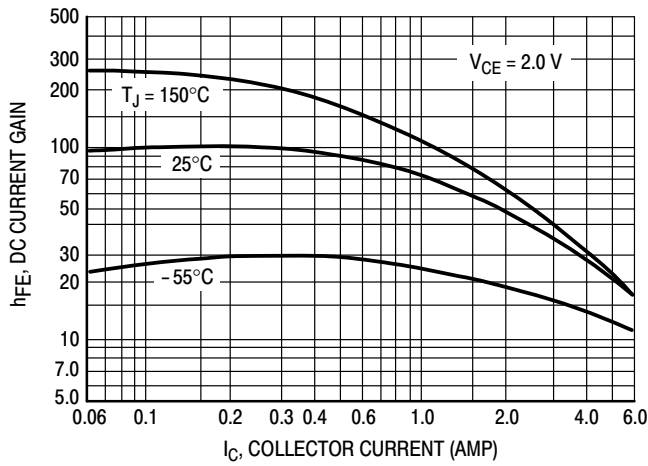


Figure 8. DC Current Gain

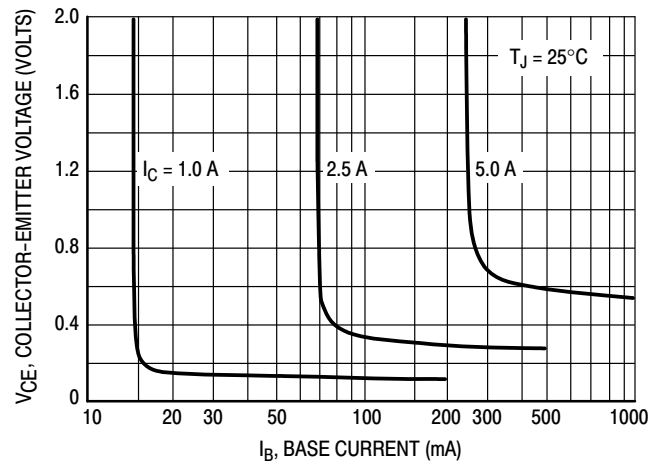


Figure 9. Collector Saturation Region

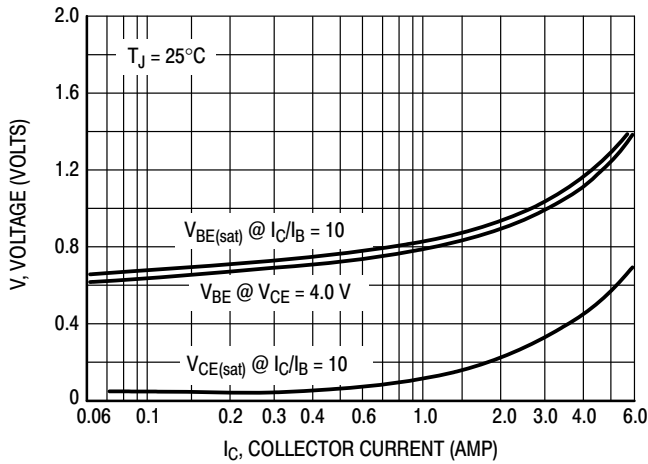


Figure 10. "On" Voltages

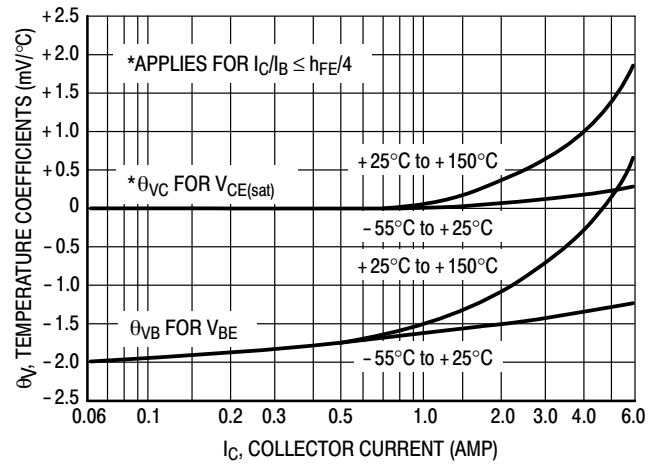


Figure 11. Temperature Coefficients

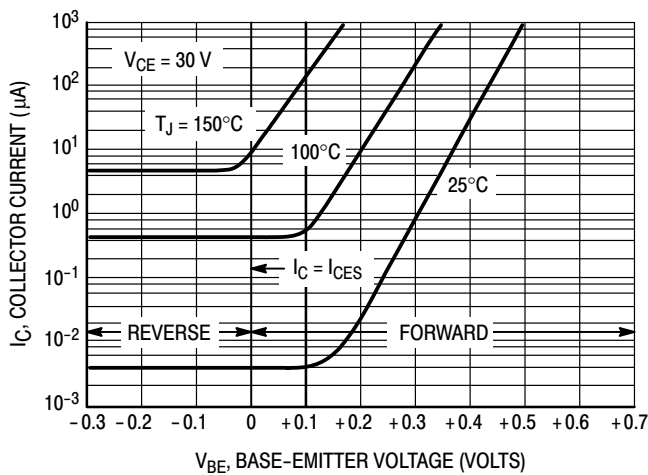


Figure 12. Collector Cut-Off Region

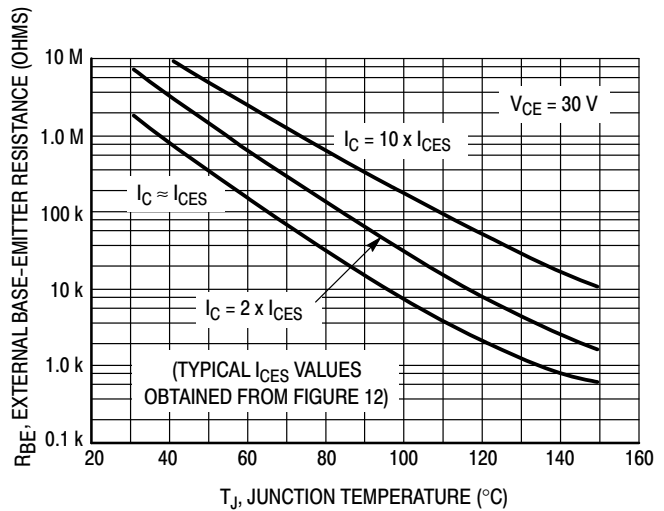
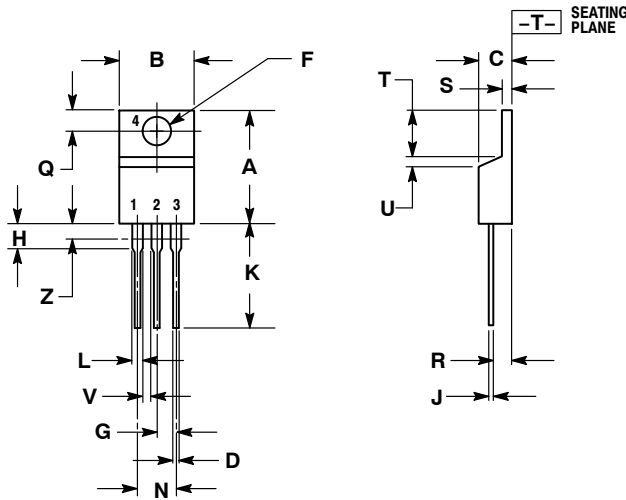


Figure 13. Effects of Base-Emitter Resistance

TIP41, TIP41A, TIP41B, TIP41C (NPN); TIP42, TIP42A, TIP42B, TIP42C (PNP)

PACKAGE DIMENSIONS

TO-220 CASE 221A-09 ISSUE AG




NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.036	0.64	0.91
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

STYLE 1:

1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

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TIP41A/D