

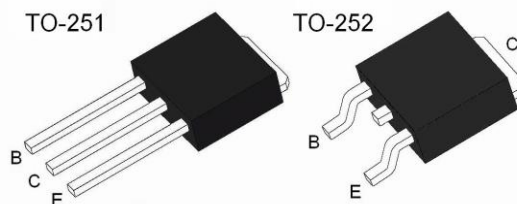
NPN TO-251/252 Plastic-Encapsulate Transistors

Applications

- Low Speed Switching

Features

- High current output up to 6A
- Low saturation voltage
- Electrically Similar to Popular TIP41C
- The complementary PNP types are MJD42C.



Absolute Maximum Rating ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector-base voltage		BV_{CBO}	100	V
Collector-emitter voltage		BV_{CEO}	100	V
Emitter-base voltage		BV_{EBO}	5	V
Collector current		I_C	6	A
Collector current pulse		I_{CP}	10	A
Collector powerdissipation	$T_a=25^{\circ}\text{C}$	P_C	1.75	W
	$T_C=25^{\circ}\text{C}$		20	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature		T_{stg}	-55~150	$^{\circ}\text{C}$

Electrical Characteristics ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu\text{A}$, $I_E = 0$	100			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$, $I_B = 0$	100			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu\text{A}$, $I_C = 0$	5			V
Collector cut-off current	I_{CEO}	$V_{CB} = 60\text{V}$, $I_B = 0$			50	μA
Collector cut-off current	I_{CES}	$V_{CE} = 100\text{V}$, $V_{BE} = 0$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$			50	μA
DC current gain*	h_{FE}	$V_{CE} = 4\text{V}$, $I_C = 0.3\text{A}$ $V_{CE} = 4\text{V}$, $I_C = 3\text{A}$	30 15			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 6\text{A}$, $I_B = 0.6\text{A}$			1.5	V
Base-emitter on voltage*	$V_{BE(on)}$	$V_{CE} = 6\text{V}$, $I_B = 4\text{A}$			2	V
Transition frequency	f_T	$V_{CE} = 10\text{V}$, $I_B = 0.5\text{A}$	3			MHz

* Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$ Pulse

Typical Characteristics

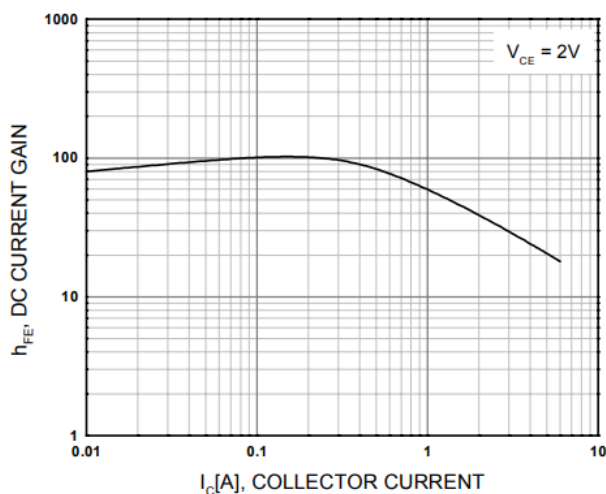


Figure 1. DC current Gain

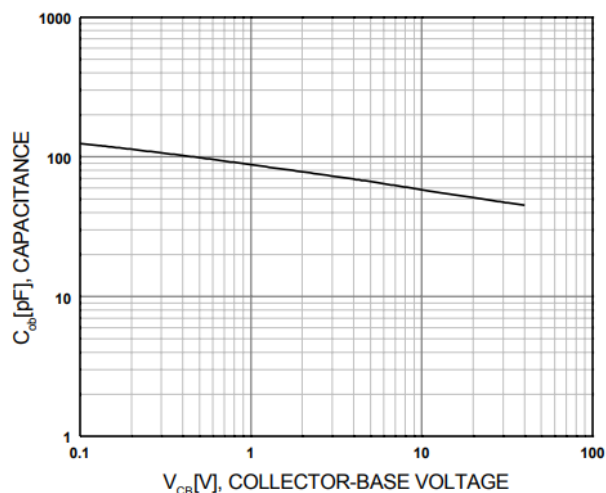


Figure 3. Collector Output Capacitance

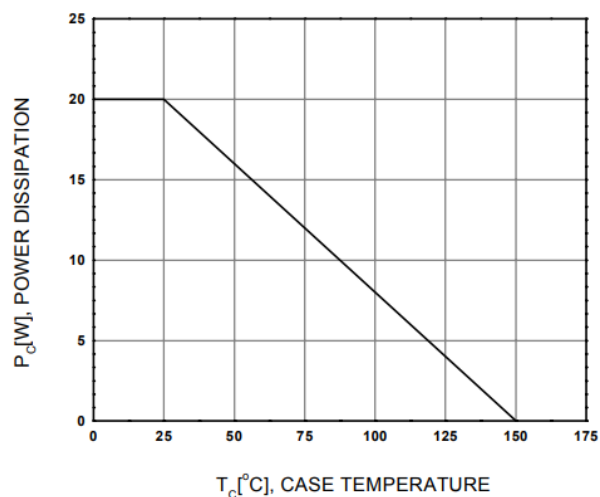


Figure 5. Power Derating

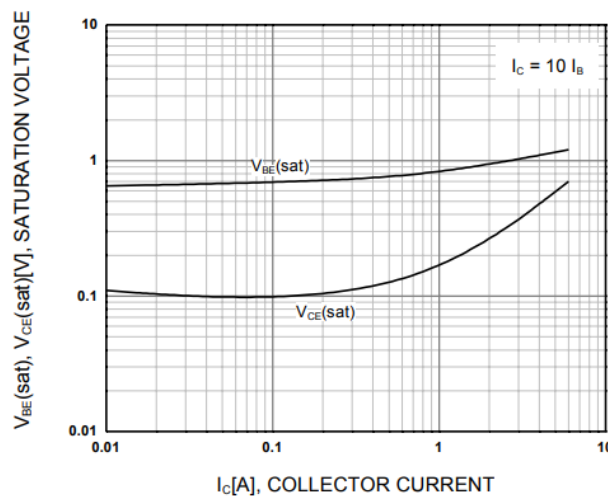


Figure 2. Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

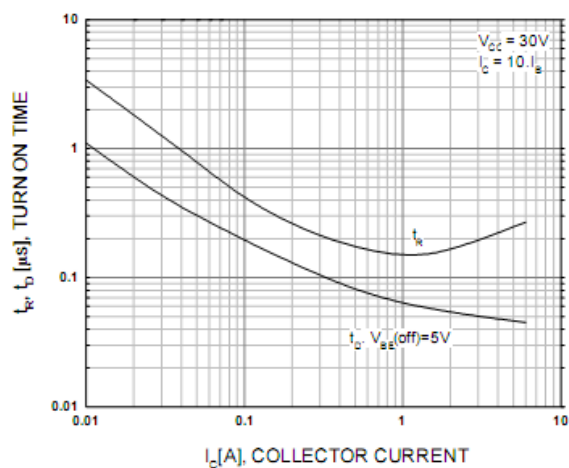


Figure 4. Turn On Time

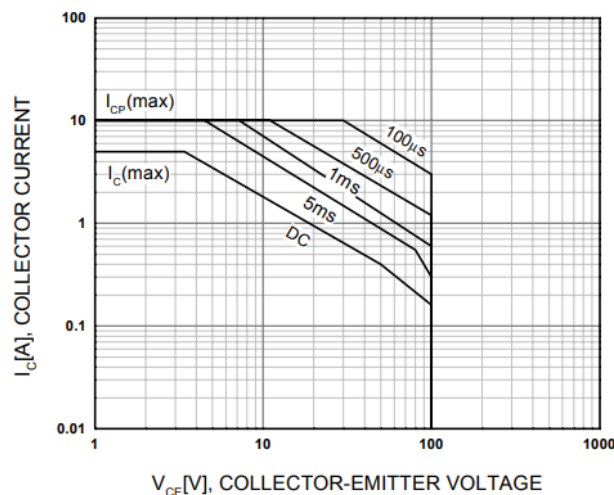
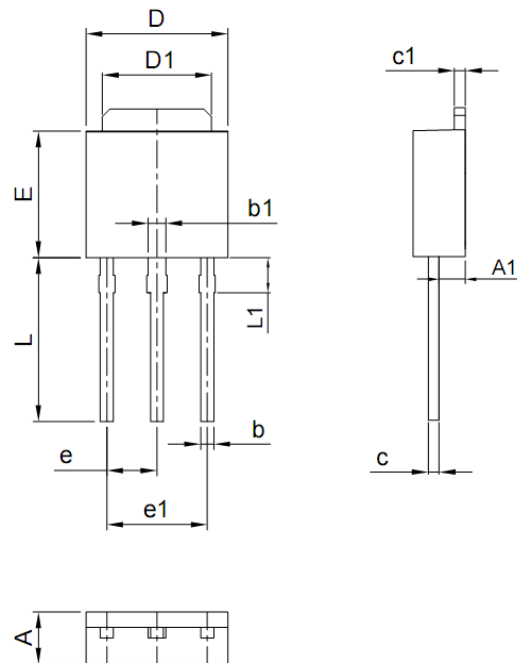


Figure 6. Safe Operating Area

Package Dimensions

TO-251	Dim	Millimeter		Inches	
		Min.	Max.	Min.	Max.
	A	2.20	2.50	0.087	0.098
	A1	1.00	1.20	0.039	0.055
	b	0.50	0.70	0.020	0.028
	b1	0.70	0.90	0.028	0.035
	c	0.40	0.60	0.016	0.024
	c1	0.40	0.60	0.016	0.024
	D	6.20	6.70	0.244	0.264
	D1	5.10	5.50	0.201	0.217
	E	5.50	6.00	0.217	0.236
	e	2.20	2.40	0.087	0.094
	e1	4.40	4.80	0.173	0.189
	L	9.60	10.20	0.378	0.402
	L1	1.40	1.70	0.055	0.063
TO-252	A	2.20	2.50	0.087	0.094
	A1	0.00	0.15	0.000	0.006
	b	0.50	0.70	0.020	0.028
	b1	0.70	0.90	0.028	0.035
	c	0.40	0.60	0.016	0.024
	c1	0.40	0.60	0.016	0.024
	D	6.20	6.70	0.244	0.264
	D1	5.10	5.50	0.201	0.217
	E	5.50	6.00	0.217	0.236
	e	2.20	2.40	0.087	0.094
	e1	4.40	4.80	0.173	0.189
	L	9.70	10.40	0.382	0.409
	L1	1.40	1.70	0.055	0.063