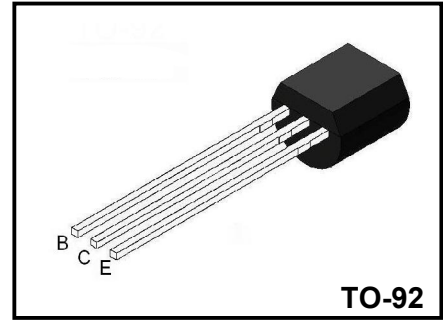


**NPN Plastic-Encapsulate Transistors**

**High Voltage Mode Application**

High speed Switching



Marking :YFW13003B

**Absolute Maximum Rating (Ta=25°C)**

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$BV_{CBO}$	700	V
Collector-Emitter Voltage	$BV_{CEO}$	400	V
Emitter-Base Voltage	$B_{VEBO}$	9	V
Collector Current	$I_C$	0.5	A
Collector Power Dissipation	$P_C$	0.9	W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55~150	°C

**Electrical Characteristics (Ta=25°C)**

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = 100\mu A, I_E = 0$	700			V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1mA, I_B = 0$	400			V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu A, I_C = 0$	9			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 700V, I_E = 0$			100	$\mu A$
Collector cut-off current	$I_{CEO}$	$V_{CE} = 400V, I_B = 0$			200	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 9V, I_C = 0$			100	$\mu A$
DC current gain*	$h_{FE}$	$V_{CE} = 5, I_C = 0.1A$	10		40	
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 0.5A, I_B = 0.1A$			0.5	V
Base -emitter saturation voltage*	$V_{BE(sat)}$	$I_C = 0.5A, I_B = 0.1A$			1.2	V
Transition frequency	$f_T$	$V_{CE} = 10V, I_B = 0.1A$	8			MHz
Output Capacitance	$C_{ob}$	$V_{CE} = 10V, f = 1MHz$		21		pF
Turn On Time	$t_{on}$	$V_{CC} = 10V, I_C = 0.1A$			1.1	$\mu s$
Storage Time	$t_{stg}$	$I_{B1} = 0.2A, I_{B2} = -0.1A$			4.0	$\mu s$
Fall Time	$t_f$	$RL = 125\Omega$			0.7	$\mu s$

\* Pulse Test: Pulse Width=5ms, Duty Cycle≤10%

Typical Characteristics

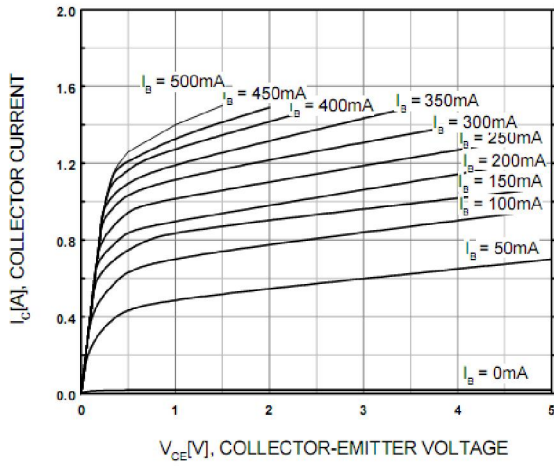


Figure 1. Static Characteristic

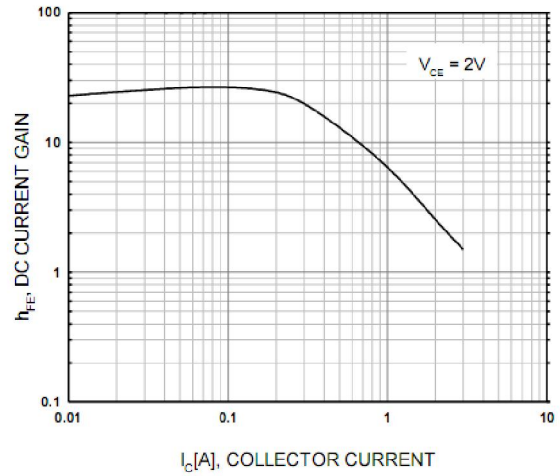


Figure 2. DC current Gain

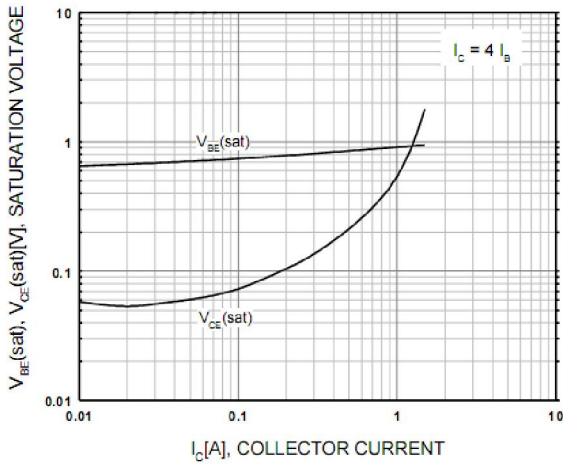


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

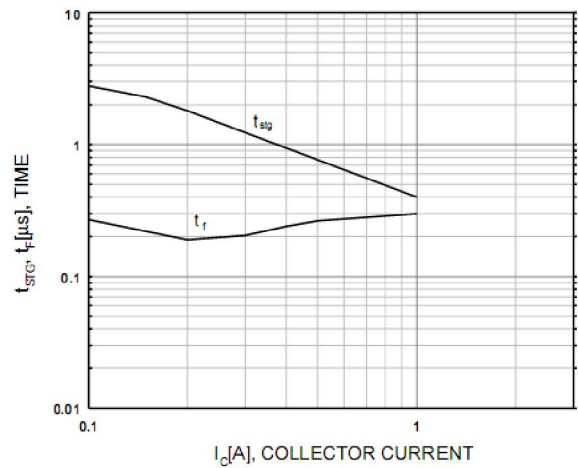


Figure 4. Switching Time

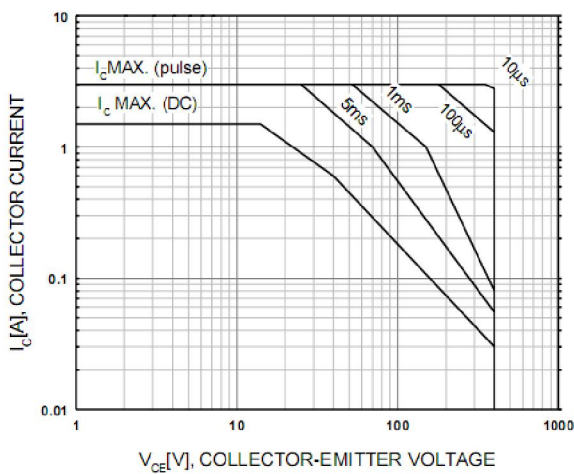


Figure 5. Safe Operating Area

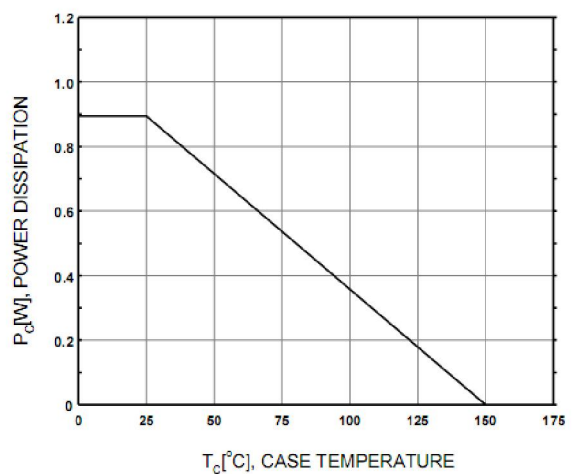


Figure 6. Power Derating

Package Dimensions

TO-92

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.70	0.130	0.146
A1	2.30	2.70	0.091	0.106
b	0.40	0.50	0.016	0.020
b1	0.50	0.70	0.020	0.028
c	0.35	0.45	0.014	0.018
D	4.45	4.70	0.175	0.185
E	4.40	4.65	0.173	0.183
e	1.17	1.37	0.046	0.054
e1	2.34	2.64	0.092	0.104
L	13.50	14.50	0.531	0.571
L1	1.80	2.20	0.071	0.087

Package	Packing Method	Pack Quantity
TO-92	Bulk	1000pcs/Bag
TO-92	Tape	2000pcs/Box