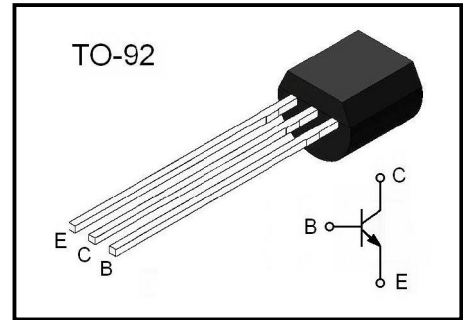


NPN Plastic-Encapsulate Transistors

High Voltage Mode Application

High speed Switching



Marking Code	
YFW13003B	YFW 13003B

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	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 400V, I_B = 0$			200	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 9V, I_C = 0$			100	μA
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	μs
Storage Time	t_{stg}	$I_{B1} = 0.2A, I_{B2} = -0.1A$			4.0	μs
Fall Time	t_f	$RL = 125\Omega$			0.7	μs

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

Typical Characteristics

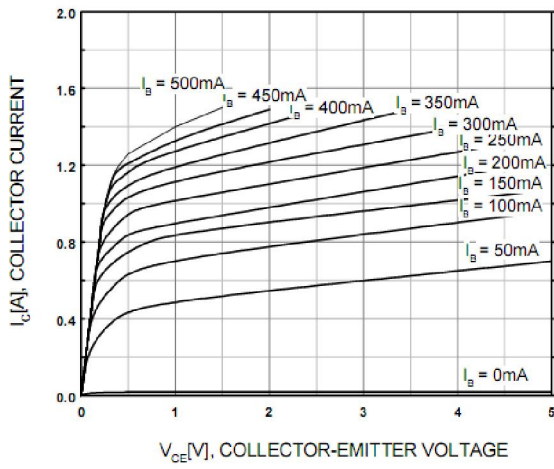


Figure 1. Static Characteristic

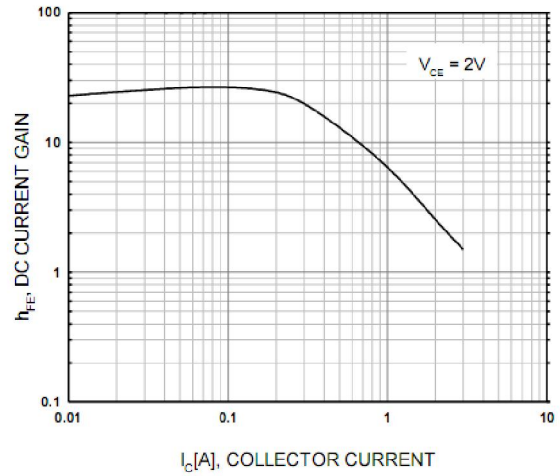


Figure 2. DC current Gain

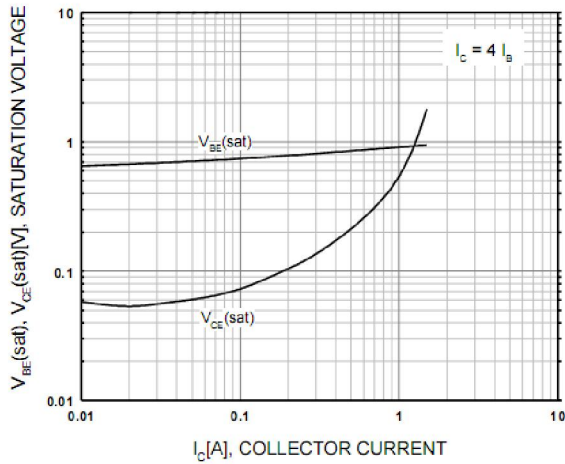


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

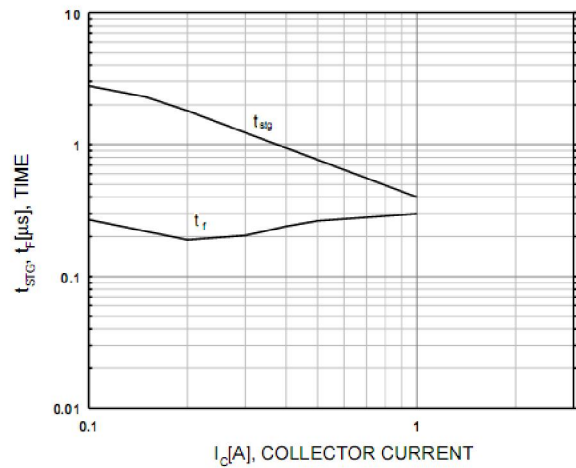


Figure 4. Switching Time

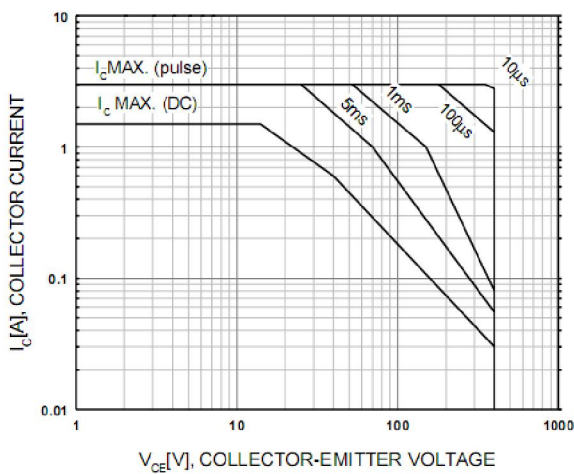


Figure 5. Safe Operating Area

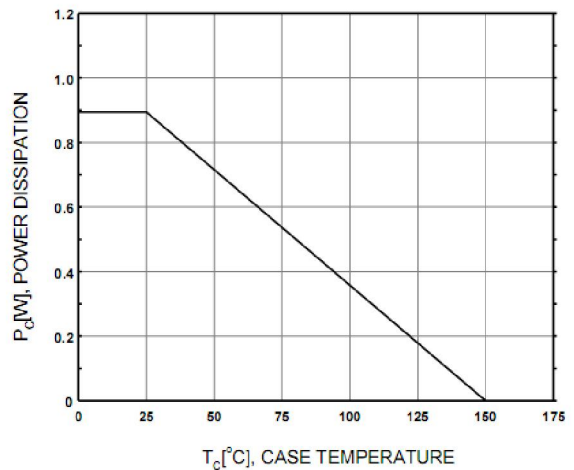


Figure 6. Power Derating

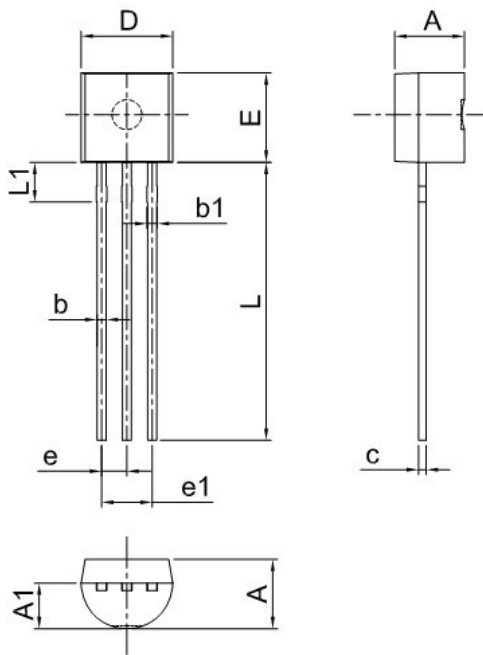
Ordering information

Package	Packing Description	Base Quantity
TO-92	Bulk	1000pcs/Bag
	Tape	2000pcs/Box

Package Dimensions

TO-92

Dim	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



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