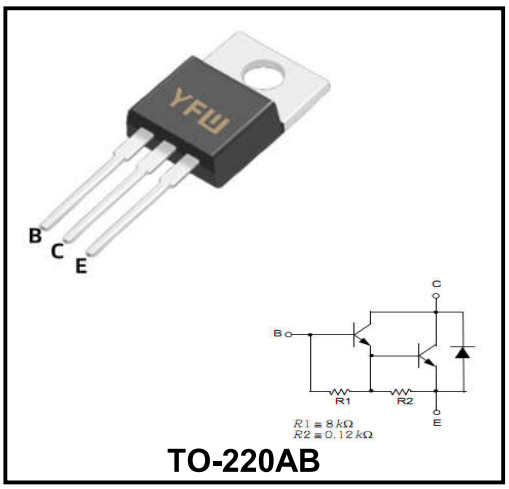
NPN Plastic-Encapsulate Transistors

Description

The devices are manufactured in planar technology with “base island” layout and monolithic Darlington configuration. The resulting transistors show exceptional high gain performance coupled with very low saturation voltage.



TO-220AB

Applications

➢General purpose linear and switching

Features

➢Low collector-emitter saturation voltage

➢ Complementary to TIP125/126/127

Absolute Maximum Rating (Ta=25℃)

Parameter		Symbol	Value			Unit
			TIP120	TIP121	TIP122	
Collector-Base Voltage		BV_{CBO}	60	80	100	V
Collector-Emitter Voltage		BV_{CEO}	60	80	100	V
Emitter-Base Voltage		BV_{EBO}	5			V
Collector Current(DC)		I_C	5			A
Collector Dissipation	Ta =25 ℃	P_C	2			W
	Tc =25 ℃		65			
Junction Temperature		T_j	150			℃
Storage Temperature		T_{stg}	-65～150			℃

Electrical Characteristics (Ta=25℃)

Parameter		Symbol	Conditions	Value			Unit
				Min	Typ	Max	
Collector-Emitter Sustaining Voltage	TIP120 TIP121 TIP122	$V_{CEO(sus)}$	I_C = 30mA， I_B = 0	60 80 100			V
Collector cut-off current	TIP120 TIP121 TIP122	I_{CBO}	V_{CB} = 60V， I_E = 0 V_{CB} = 80V， I_E = 0 V_{CB} = 100V， I_E = 0			0.2	mA
Collector cut-off current	TIP120 TIP121 TIP122	I_{CEO}	V_{CE}= 30V， I_E = 0 V_{CE}= 40V， I_E = 0 V_{CE} = 50V， I_E = 0			0.5	mA
Emitter cut-off current		I_{EBO}	V_{EB} = 5V， I_C = 0			2	mA
* DC current gain		h_{FE}	V_{CE}= 3V， I_C= 0.5A V_{CE}= 3V， I_C= 3A	1000 1000			
*Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C =3A， I_B = 12mA I_C =5A， I_B = 20mA			2.0 4.0	V
* Base-Emitter ON Voltage		$V_{BE\ (on)}$	V_{CE}= 3V， I_C= 3A			2.5	V
Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f = 0.1MHz			200	pF

* Pulse Test : PW≤300μs, Duty cycle≤2%

Typical Characteristics

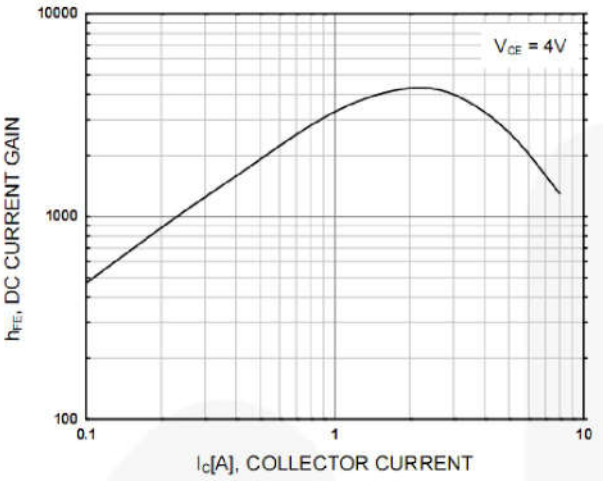


Figure 1. DC current Gain

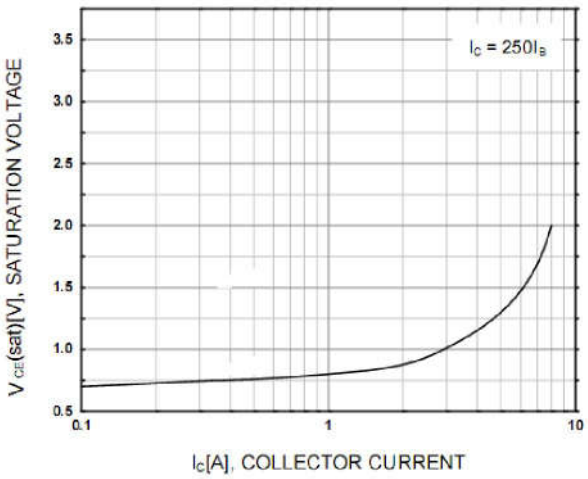


Figure 2. Collector-Emitter Saturation Voltage

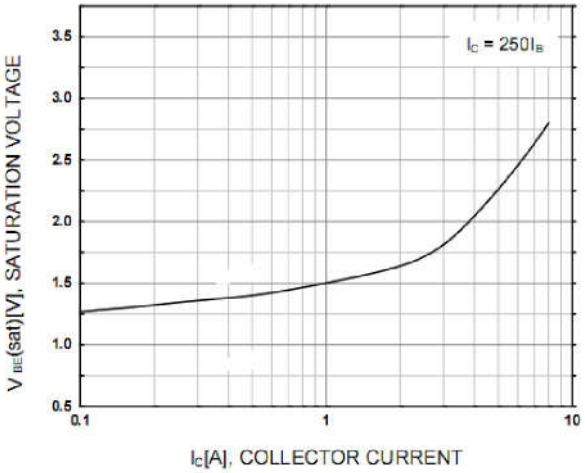


Figure 3. Base-Emitter Saturation Voltage

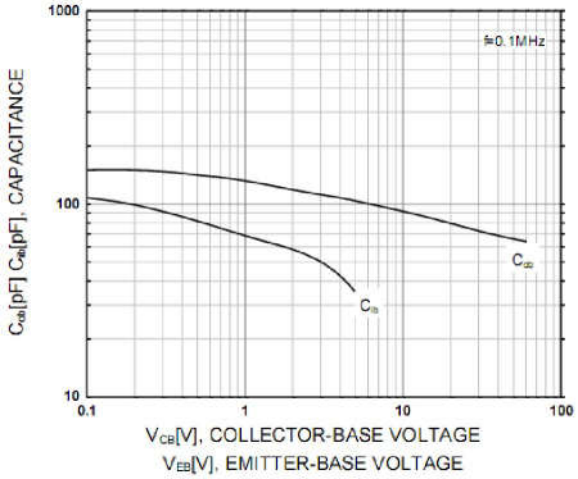


Figure 4. Output and Input Capacitance

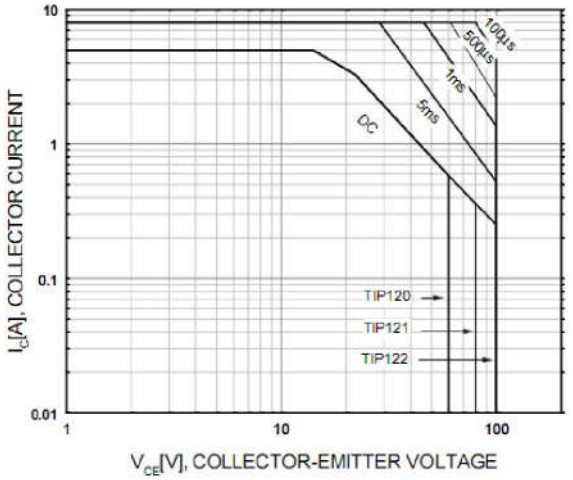


Figure 5. Safe Operating Area

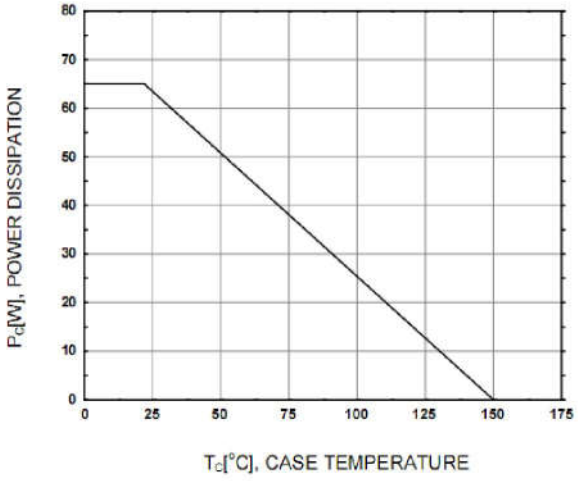
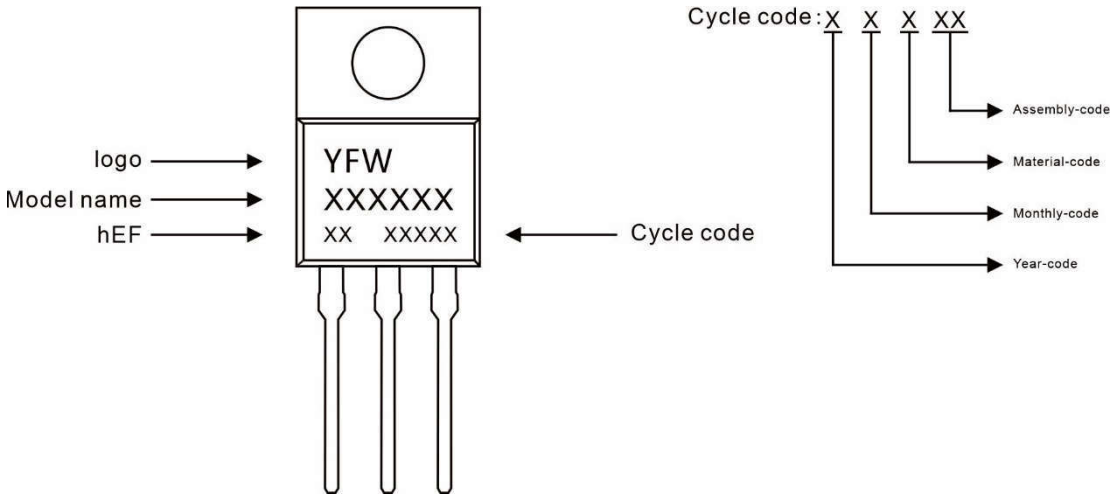


Figure 6. Power Derating

Marking Diagram

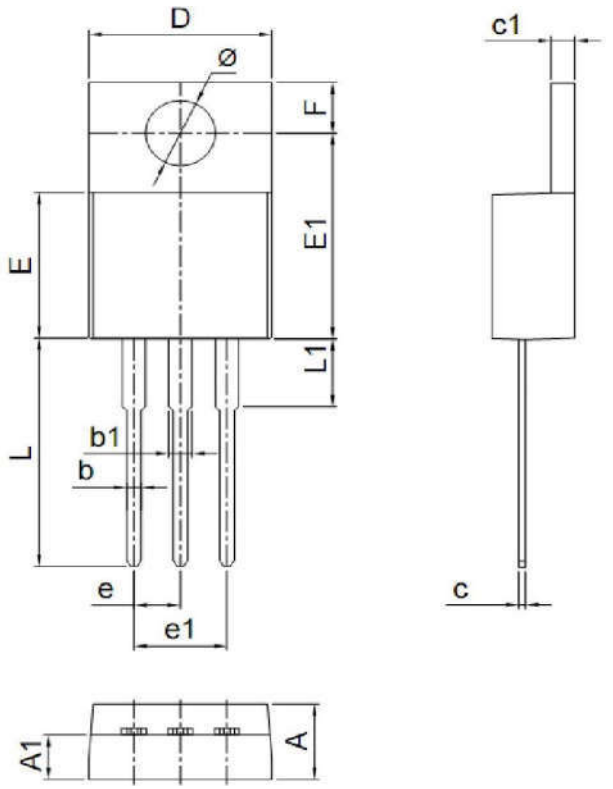


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
TIPXXX	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220AB



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

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