

PNP Plastic-Encapsulate Transistors

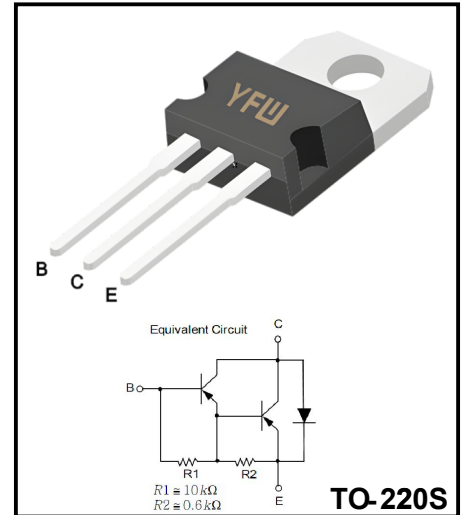
Darlington Transistor

Applications

- ◆ Audio Amplifiers
- ◆ linear and switching industrial equipment

Features

- ◆ Power Darlington TR
- ◆ Complementary to BDX53C



Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-100	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-8	A
Collector Current Pulsed)	I_{CM}	-12	A
Base Current	I_B	0.2	A
Total Dissipation at $T_c \leq 25^\circ\text{C}$	P_{tot}	60	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-65~150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case Max	$R_{thj-case}$	2.08	°C/W
Thermal Resistance Junction-ambient Max	$R_{thj-amb}$	70	°C/W

Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = -100\text{mA}, I_B = 0$	-100			V
Collector-base cut-off current	I_{CB0}	$V_{CB} = -100\text{V}, I_E = 0$			-0.2	mA
Collector- emitter cut-off current	I_{CEO}	$V_{CE} = -50\text{V}, I_E = 0$			-0.5	mA
Emitter-base cut-off current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-2	mA
DC current gain*	h_{FE}	$V_{CE} = -3\text{V}, I_C = -3\text{A}$	750			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = -3\text{A}, I_B = -12\text{mA}$			-2	V
Base-Emitter saturation Voltage*	$V_{BE(sat)}$	$I_C = -3\text{A}, I_B = -12\text{mA}$			-2.5	V
Parallel-diodeForward	V_F	$I_F = -3\text{A}$ $I_F = -8\text{A}$		-1.8 -2.5	-2.5	V

* Pulse Test : $PW \leq 300\mu\text{s}$, Duty cycle $\leq 1.5\%$

Typical Characteristics

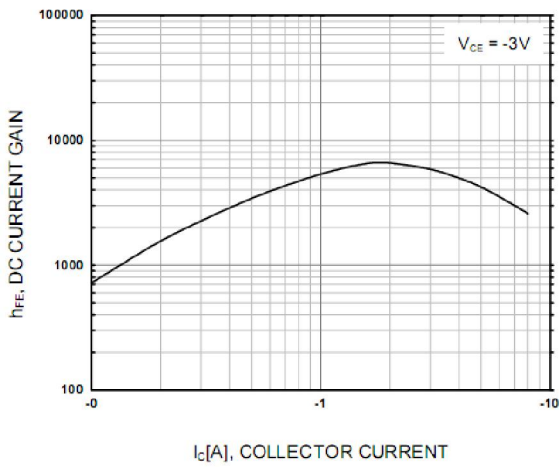


Figure 1. DC current Gain

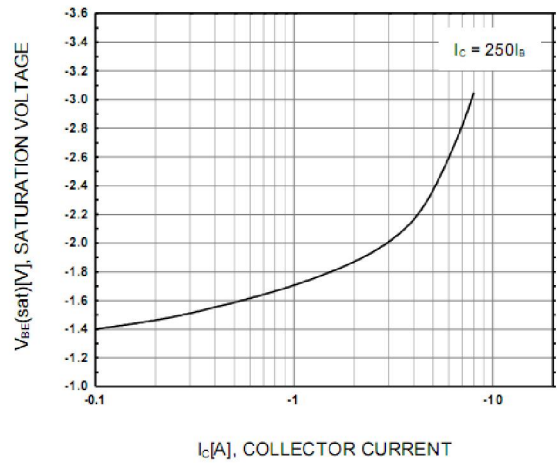


Figure 2. Base-Emitter Saturation Voltage

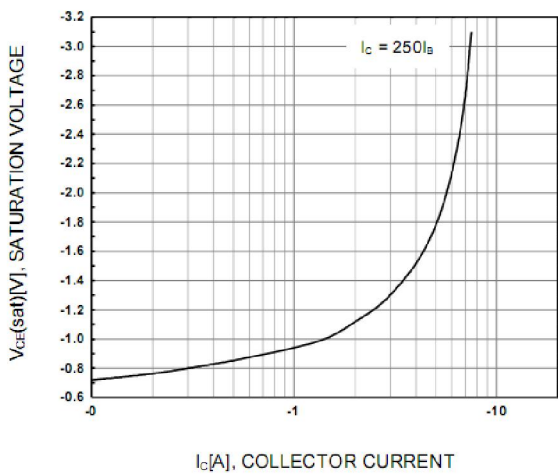


Figure 3. Collector-Emitter Saturation Voltage

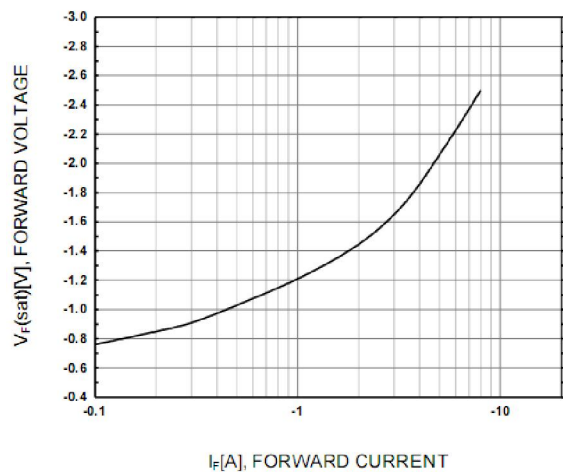


Figure 4. Damper Diode Forward Voltage

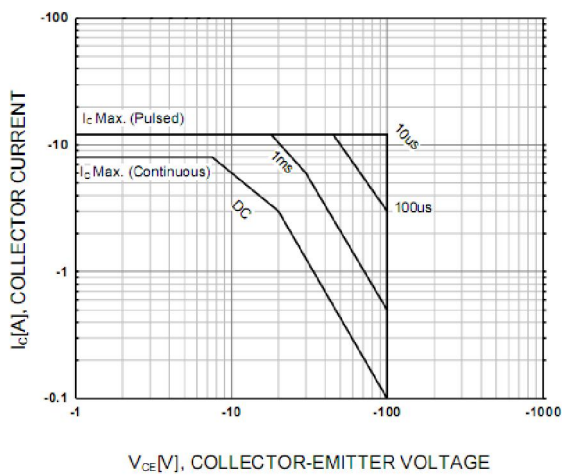


Figure 5. Safe Operating Area

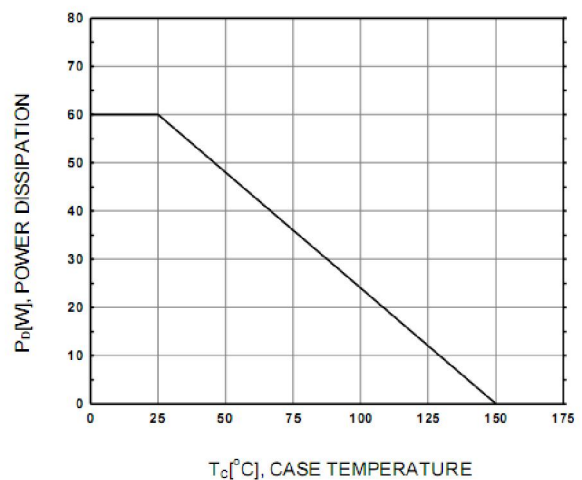
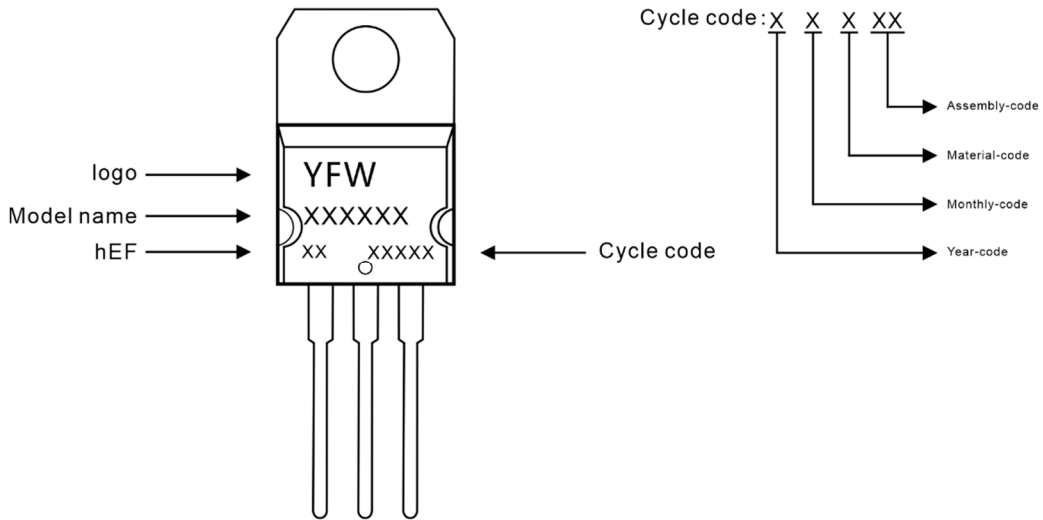


Figure 5. Power Derating

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BDX54C	TO-220S	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220S

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.171	0.184
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	0.40	0.55	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.90	9.10	0.335	0.350
E1	12.50	13.00	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	12.70	13.70	0.520	0.543
L1	2.90	3.30	0.150	0.165
Φ	3.75	3.95	0.142	0.156

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