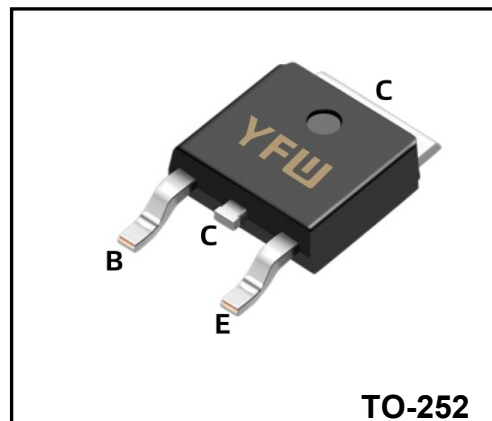


NPN Plastic-Encapsulate Transistors
High Current Switching Applications

Features

- Low collector-to-emitter saturation voltage
- Excellent linearity of h_{FE} .
- Complement to 2SB1204.



TO-252

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Value	Unit
Collector-Base Voltage		BV_{CBO}	60	V
Collector-Emitter Voltage		BV_{CEO}	50	V
Emitter-Base Voltage		BV_{EBO}	6	V
Collector Current		I_C	8	A
Collector Current (Pulse)		I_{CP}	12	A
Collector Power Dissipation	Ta=25°C	P_C	1	W
	Ta=25°C		20	
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}	$I_C = 10\mu A, I_E = 0$	60			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1mA, I_B = 0$	50			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 40V, I_E = 0$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4V, I_C = 0$			-1	μA
DC current gain	h_{FE}	$V_{CE} = 2V, I_C = 0.5A$ $V_{CE} = 2V, I_C = 6A$	70 35		400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4A, I_B = 0.2A$			0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 4A, I_B = 0.2A$			1.3	V
Transition frequency	f_T	$V_{CE} = 5V, I_B = 1A$	100			MHz
Output capacitance	C_{ob}	$V_{CB} = 10V, f = 1MHz$		65		pF

h_{FE} Classification

Classification	Q	R	S	T
Range	70~140	100~200	140~280	200~400

Typical Characteristics

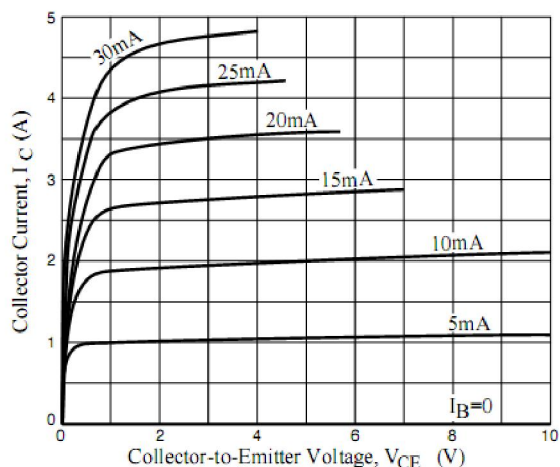


Fig.1 Static characteristics

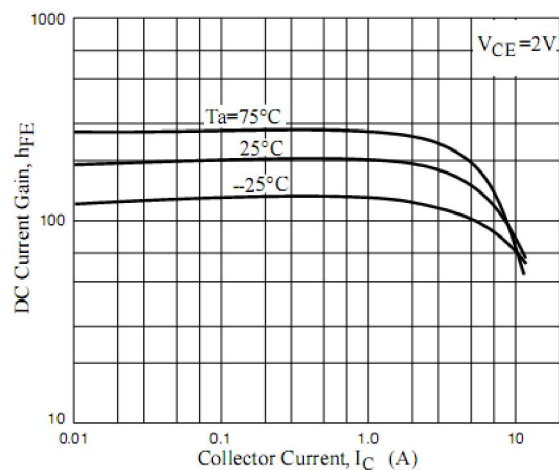


Fig.2 DC Current Gain

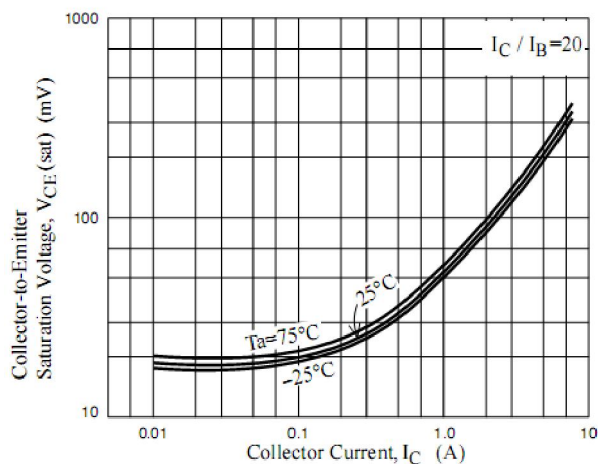


Fig.3 Saturation voltage

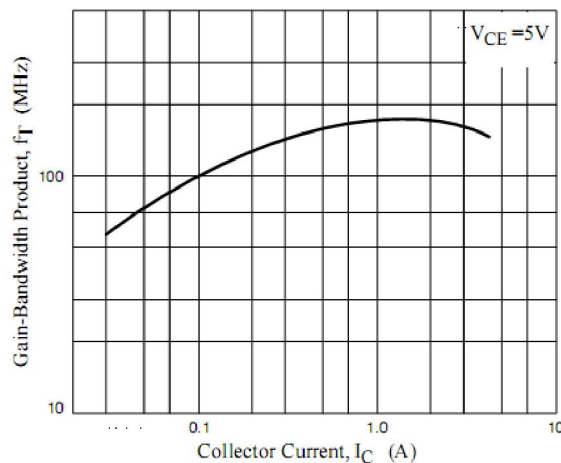


Fig.4 Gain bandwidth product

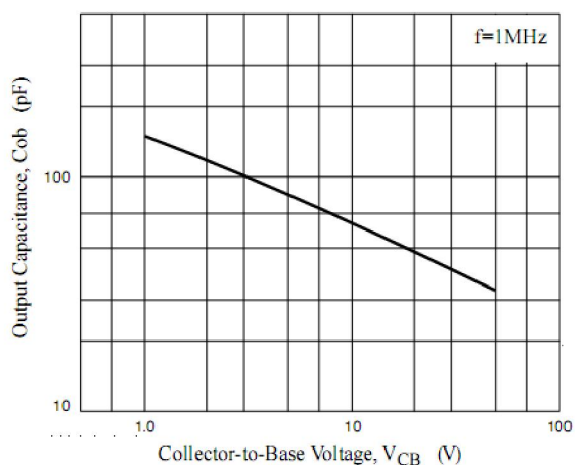


Fig.5. Collector output capacitance

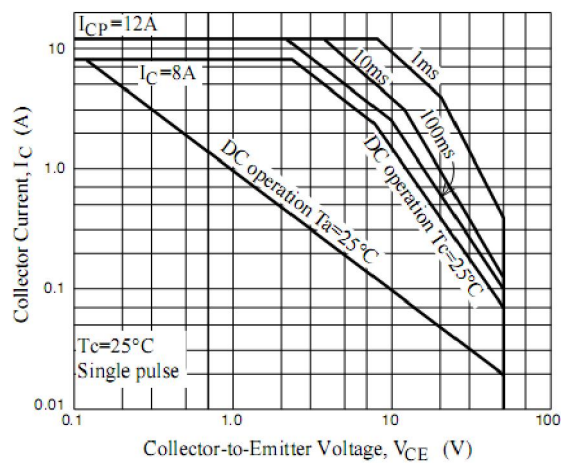
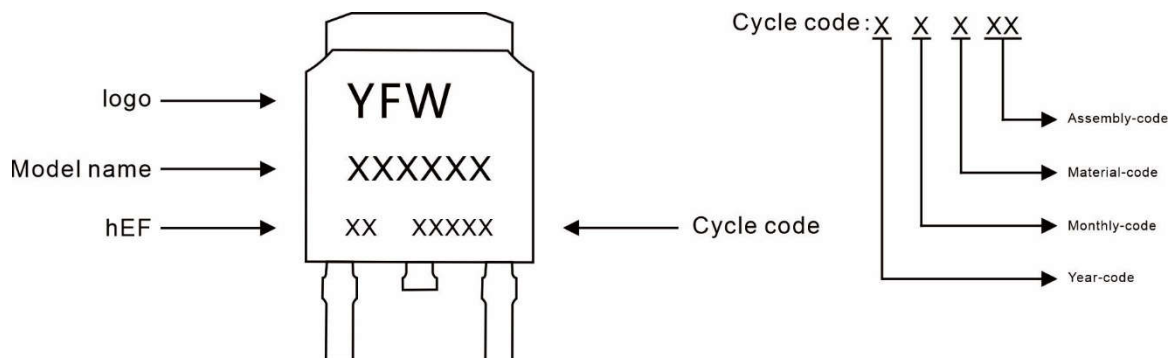


Figure 6. Safe Operating Area

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
2SD1804	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
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	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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