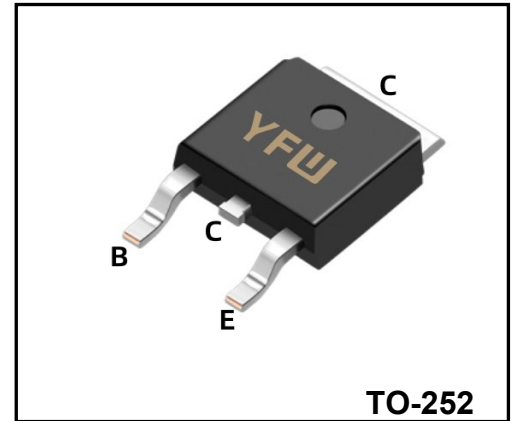


**NPN Plastic-Encapsulate Transistors**

**High-Voltage Fast-Switching**

**Applications :**

◆Electronic Ballasts For Fluorescent Lighting And Changer



**TO-252**

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$BV_{CBO}$	700	V
Collector-Emitter Voltage	$BV_{CEO}$	480	V
Emitter-Base Voltage	$BV_{EBO}$	9	V
Collector Current	$I_C$	1	A
Collector Power Dissipation	$P_C$	1.2	W
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55~+150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = 100\mu A, I_E = 0$	700			V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1mA, I_B = 0$	480			V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu A, I_C = 0$	9			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 700V, I_E = 0$			1	mA
Collector cut-off current	$I_{CEO}$	$V_{CE} = 400V, I_B = 0$			10	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 9V, I_C = 0$			1	mA
DC current gain	$h_{FE}$	$V_{CE} = 2V, I_C = 0.5A$	8		40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.5A, I_B = 0.1A$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.5A, I_B = 0.1A$ $I_C = 1A, I_B = 0.25A$			1.0 1.2	V
Transition frequency	$f_T$	$V_{CE} = 10V, I_B = 0.1A$	8			MHz

Typical Characteristics

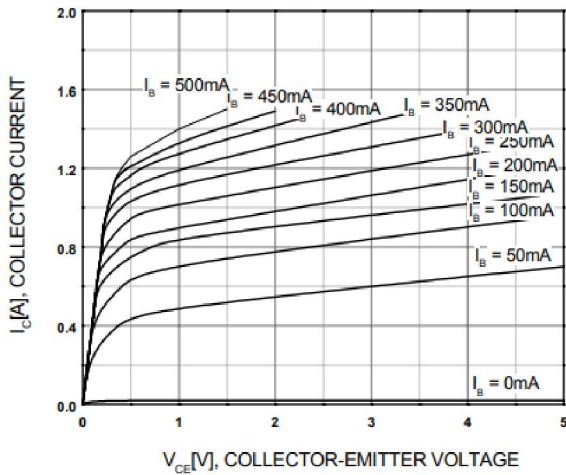


Figure 1. Static Characteristic

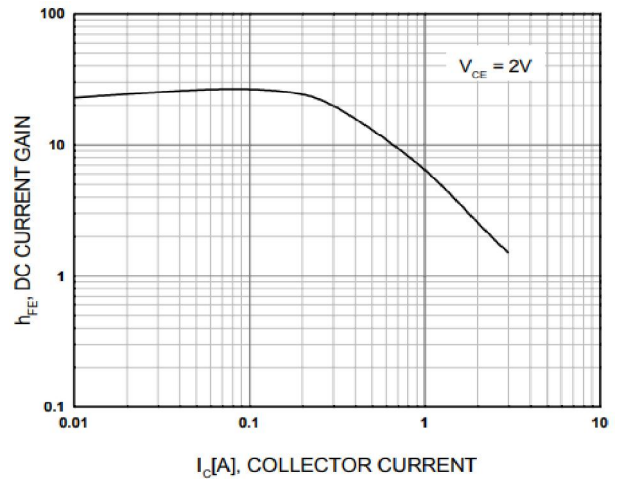


Figure 2. DC current Gain

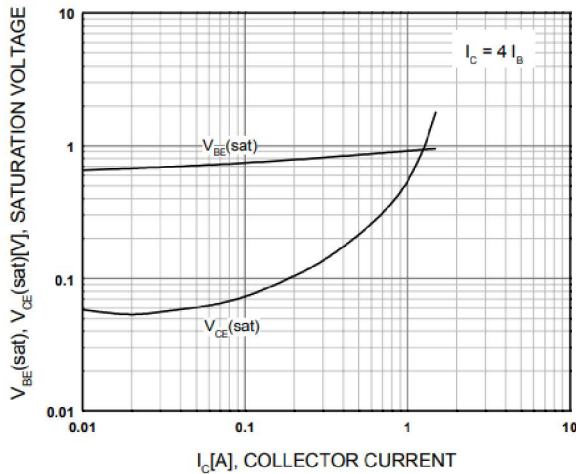


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

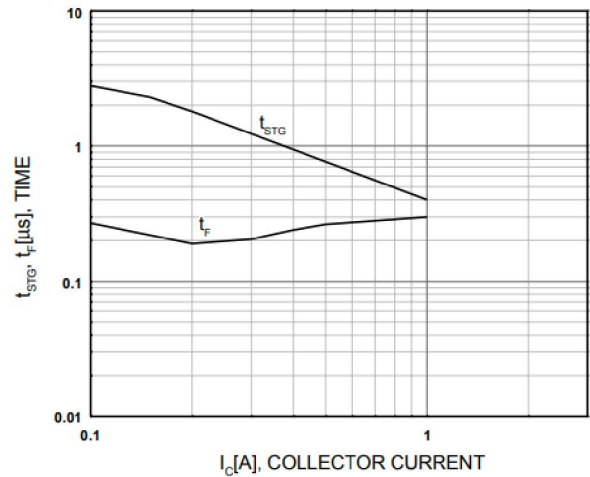


Figure 4. Switching Time

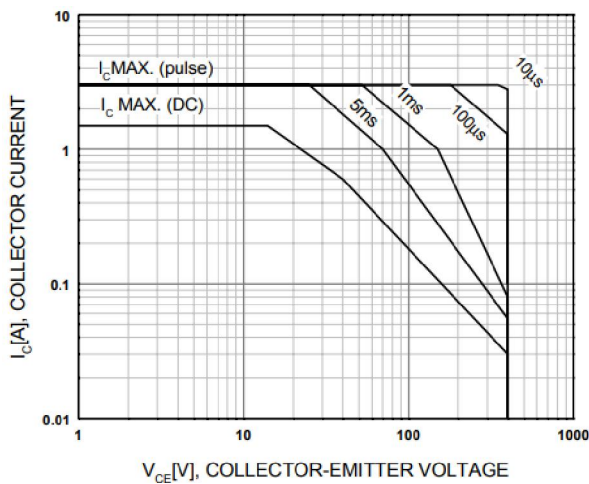


Figure 5. Safe Operating Area

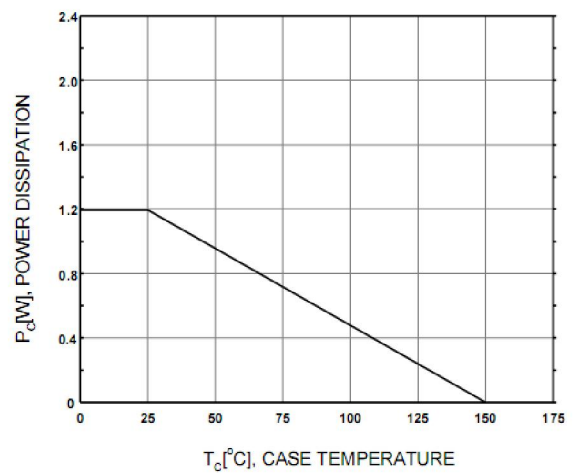
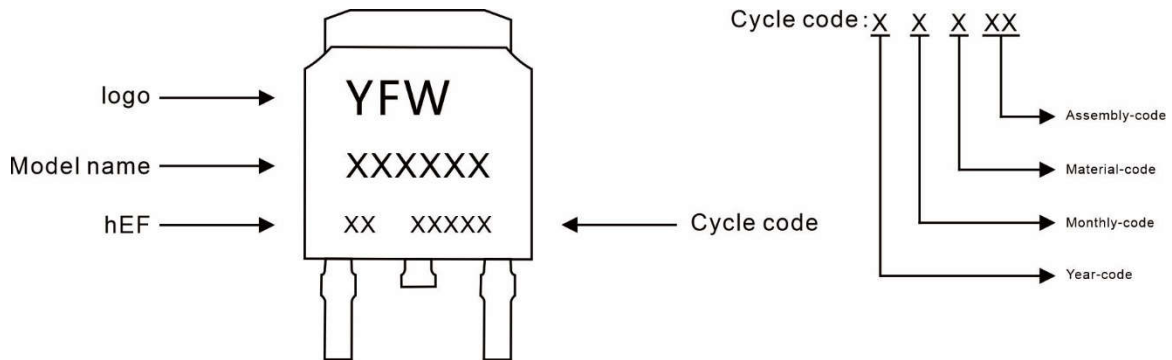


Figure 6. Power Derating

**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
MJE13002	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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