

NPN Plastic-Encapsulate Transistors

High Voltage Switching

Application

♦TV Horizontal output and switching

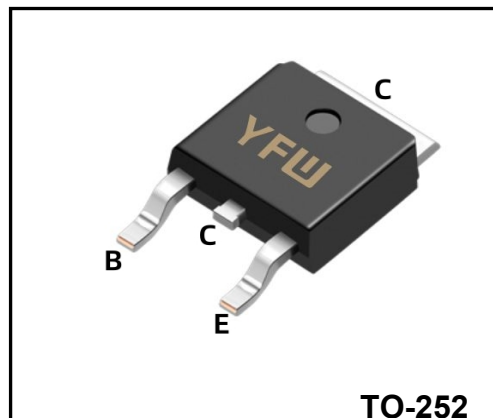
Features

♦High breakdown voltage

♦Fast Switching Speed

♦Low Saturation Voltage

♦These Devices are Pb-Free and are RoHS Compliant



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value		Unit
		BU406	BU407	
Collector-Base Voltage	BV_{CBO}	400	330	V
Collector-Emitter Voltage	BV_{CEO}	200	150	V
Emitter-Base Voltage	BV_{EBO}	6		V
Collector Current	I_C	7		A
Collector Current Pulse	I_{CP}	10		A
Base Current	I_B	4		A
Collector Power Dissipation	P_C	20		W
Junction Temperature	T_J	150		°C
Storage Temperature	T_{stg}	-55~150		°C

Thermal characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	6	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	7	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8" from Case for 5 Seconds	T_L	260	°C

Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	Value			Unit
				Min	Typ	Max	
Collector-emitter breakdown voltage	BU406	BV_{CEO}	$I_C = 100mA, I_B = 0$	200			V
	BU407			150			
Emitter-base breakdown voltage		BV_{EBO}	$I_E = 1mA, I_C = 0$	6			V
Collector cut-off current	BU406	I_{CES}	$V_{CE} = 400V, V_{BE} = 0$ $V_{CE} = 200V, V_{BE} = 0$			5 100	mA μA
	BU407		$V_{CE} = 330V, V_{BE} = 0$ $V_{CE} = 200V, V_{BE} = 0$			5 100	mA μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 6V, I_C = 0$			1	mA
DC current gain*		h_{FE}	$V_{CE} = 5V, I_B = 2A$	30			
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 5A, I_B = 0.5A$			1.0	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 5A, I_B = 0.5A$			1.2	V
Transition frequency		f_T	$V_{CE} = 10V, I_B = 0.5A$	10			MHz
Output Capacitance		C_{ob}	$V_{CB} = 40V, I_E = 0, f = 1MHz$		80		pF
Inductive Load Crossover Time		t_c	$V_{CC} = 40V, I_C = 5A,$			0.75	μs

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$.

Typical Characteristics

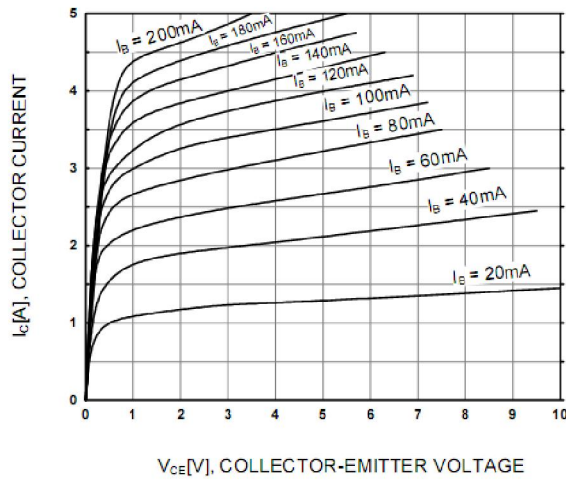


Figure 1. Static Characteristic

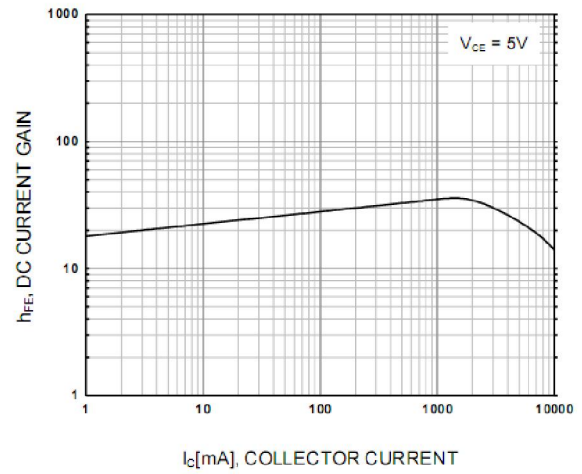


Figure 2. DC current Gain

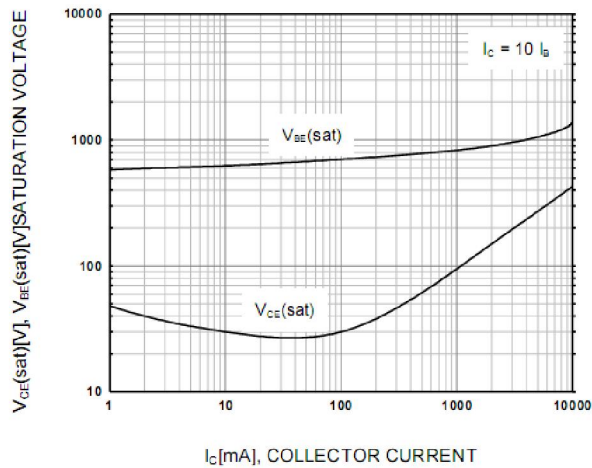


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

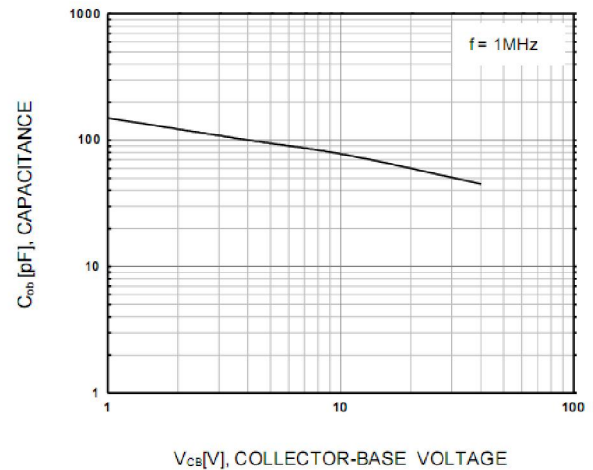


Figure 4. Collector Output Capacitance

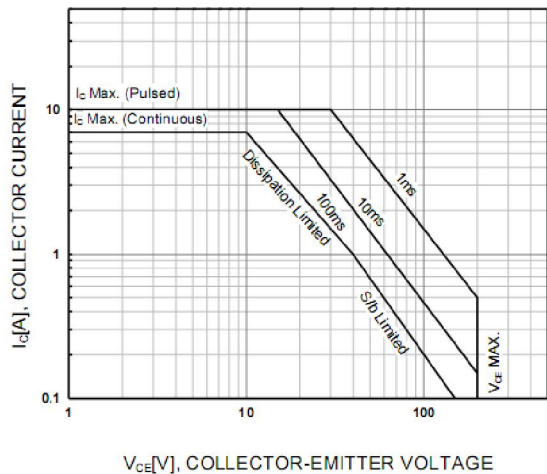


Figure 5. Safe Operating Area

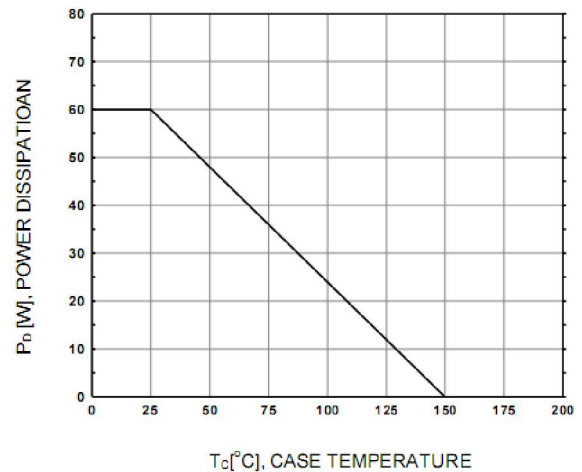
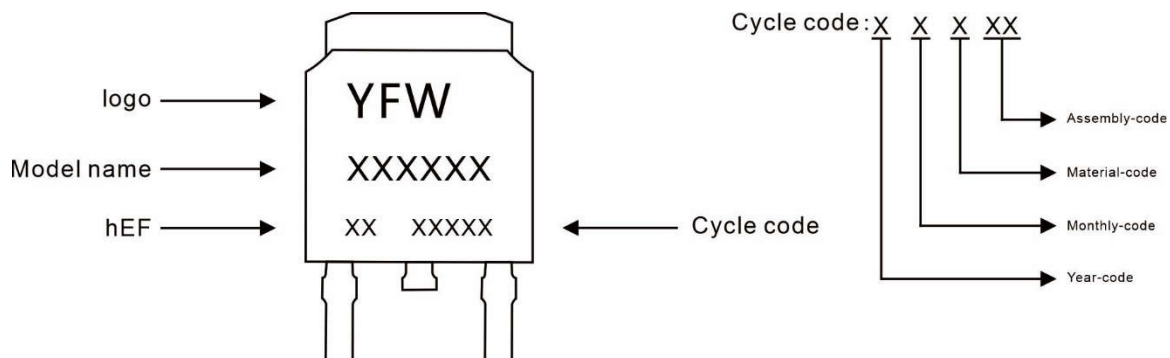


Figure 6. Power Derating

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
BU406/BU407	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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