

**NPN Silicon Epitaxial Planar Transistor**

**Features**

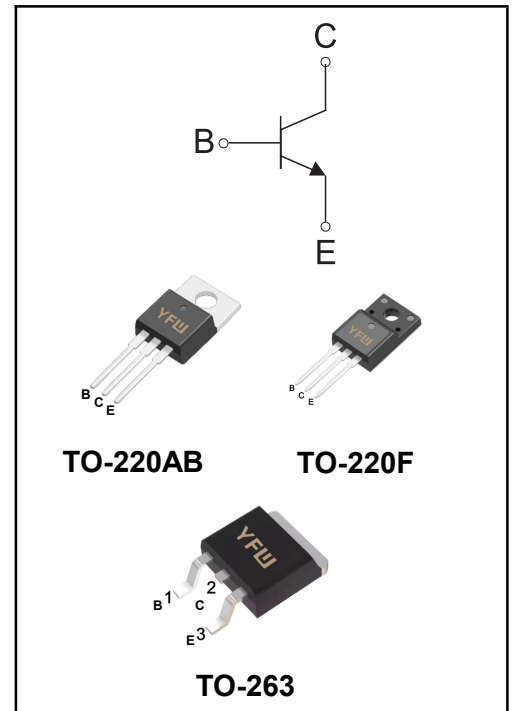
- ◆ High voltage
- ◆ High speed switching

**APPLICATIONS**

- ◆ High Speed Switching
- ◆ Suitable for Switching Regulator and Motor Control

**Mechanical Data**

- ◆ Case: Molded plastic
- ◆ Polarity: As marked
- ◆ Mounting Position: Any
- ◆ Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆ Lead free in compliance with EU RoHS 2011/65/EU directive
- ◆ Solder bath temperature 275°C maximum, 10s per JESD22-106



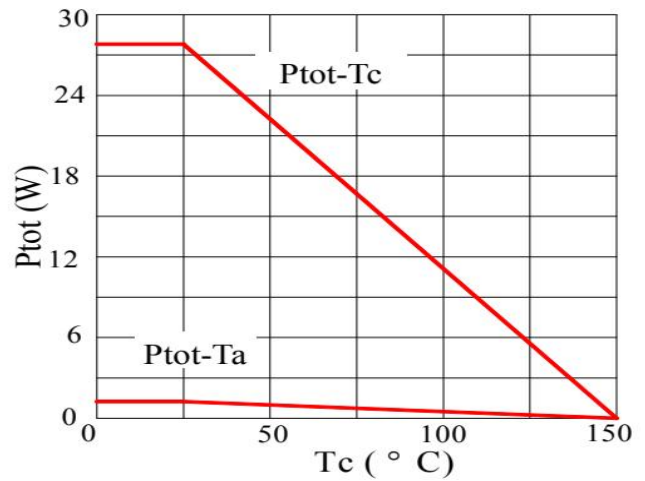
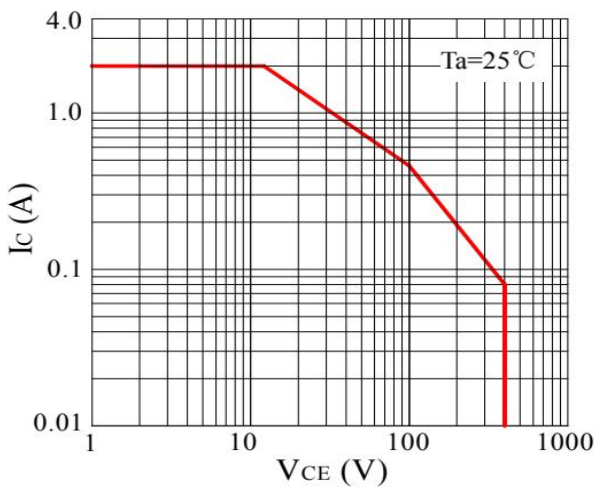
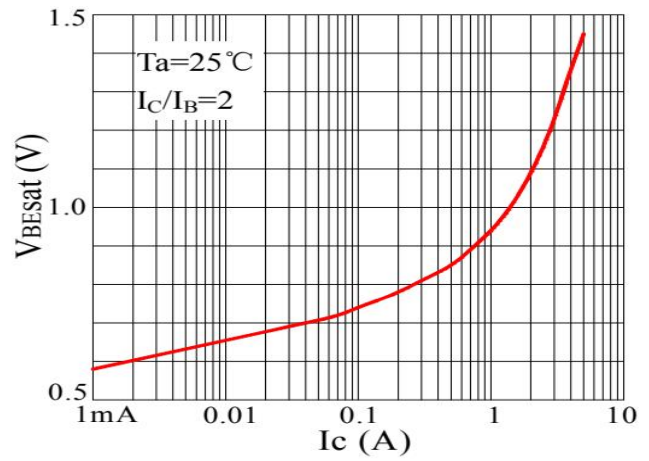
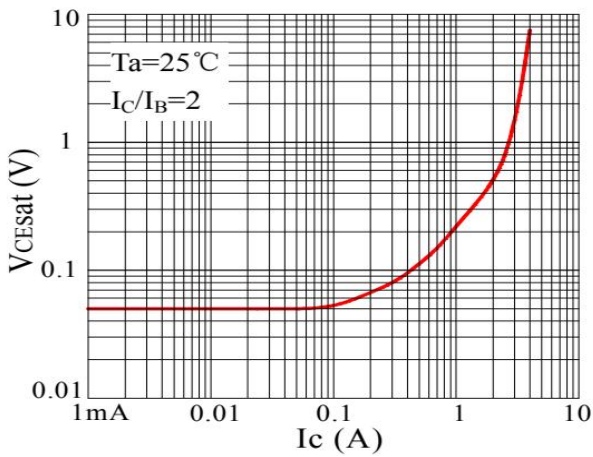
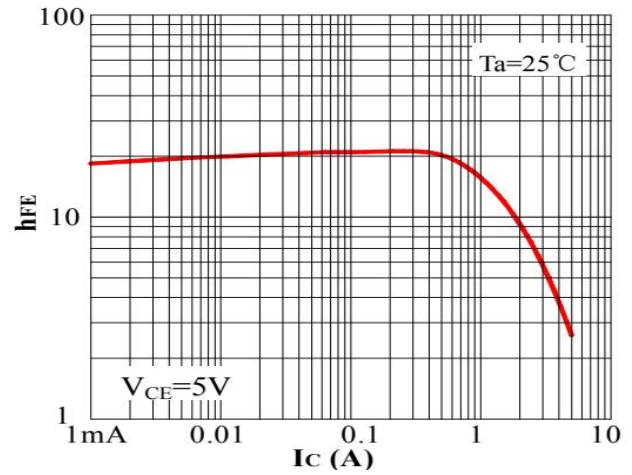
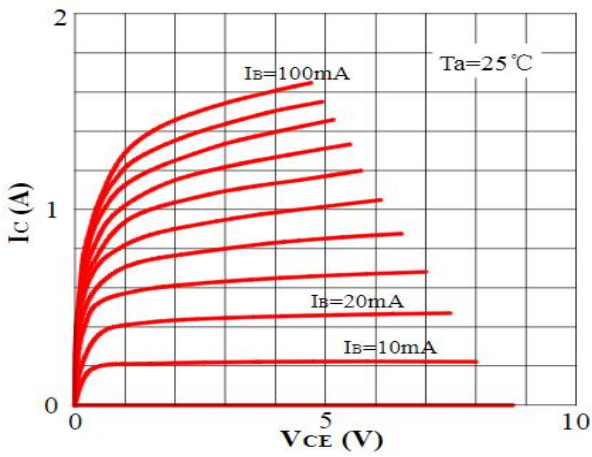
**Maximum Ratings At Ta=25°C Unless Otherwise Specified**

Characteristics	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	700	V
Collector Emitter Voltage	$V_{CEO}$	400	V
Emitter Base Voltage	$V_{EBO}$	9	V
Collector Current	$I_C$	1.5	A
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Power Dissipation (Tc = 25 °C ) Superimposed on Rated Load (JEDEC method)	$P_{tot}$	1.5	W
Operating Temperature Range	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

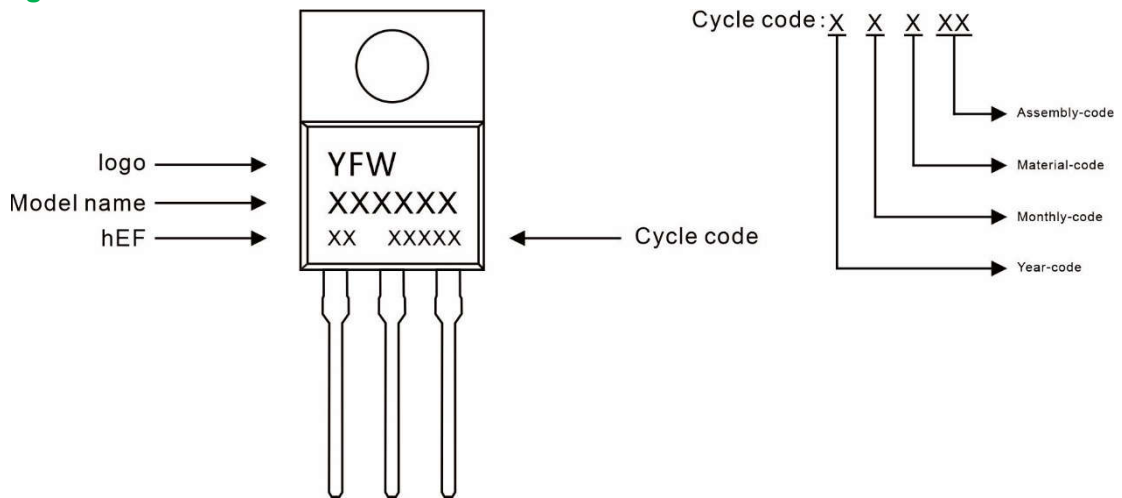
**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5V, I_C = 0.5A$	$h_{FE}$	15	-	30	-
Collector Base Cutoff Current at $V_{CB} = 700V$	$I_{CBO}$	-	-	10	μA
Collector Emitter Cutoff Current at $V_{CE} = 400V$	$I_{CEO}$	-	-	10	μA
Emitter Base Cutoff Current at $V_{EB} = 9V$	$I_{EBO}$	-	-	10	μA
Collector Emitter Saturation Voltage at $I_C = 1A, I_B = 200mA$	$V_{CE(sat)}$	-	-	0.6	V
Base Emitter Saturation Voltage at $I_C = 1.5A, I_B = 250mA$	$V_{BE(sat)}$	-	-	1.2	V
Transition Frequency at $V_{CE}=10V, I_C=100mA, f=1MHZ$	$f_T$	5	-	-	MHZ

Ratings And Characteristic Curves



**Marking Diagram**



**Ordering information**

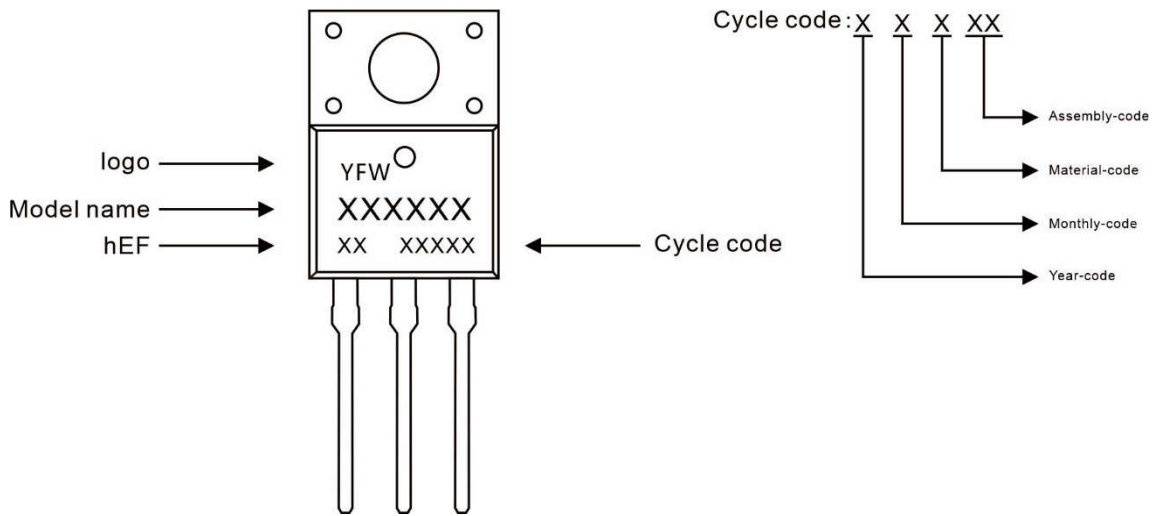
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW13003AT	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**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

**Marking Diagram**



**Ordering information**

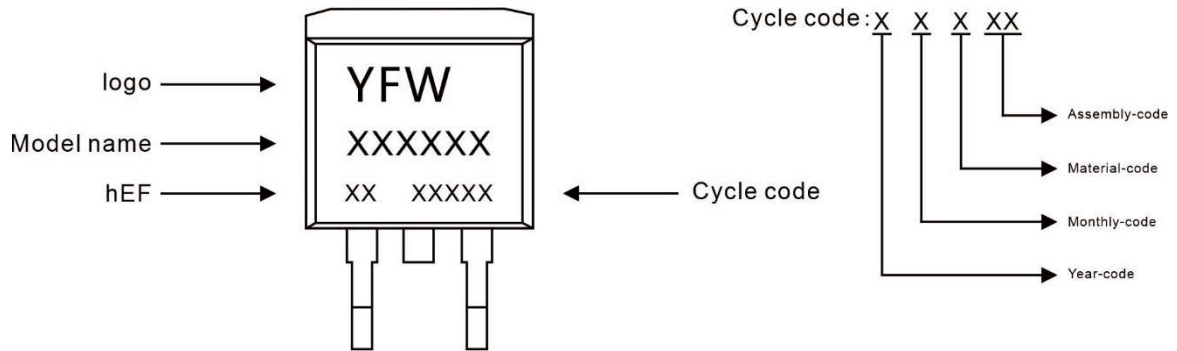
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW13003AF	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**Package Dimensions**

**TO-220F**

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW13003AS	TO-263	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

**Package Dimensions**

**TO-263**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
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
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

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