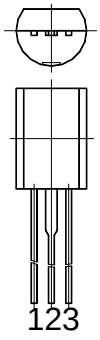
JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-92MOD Plastic-Encapsulate Transistors

2SC2230/2230A TRANSISTOR (NPN)

TO-92MOD

1. EMITTER
2. COLLECTOR
3. BASE



FEATURE

- High voltage: V_{CEO}=180V(2SC2230A)
- High DC Current Gain

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	200	V
V_{CEO}	Collector-Emitter Voltage 2SC2230	160	V
	2SC2230A	180	
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	0.1	A
P_C	Collector Power Dissipation	0.8	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55 to +150	℃

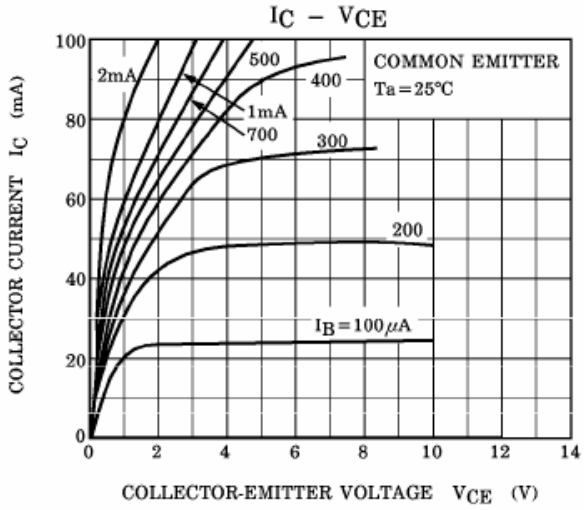
ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

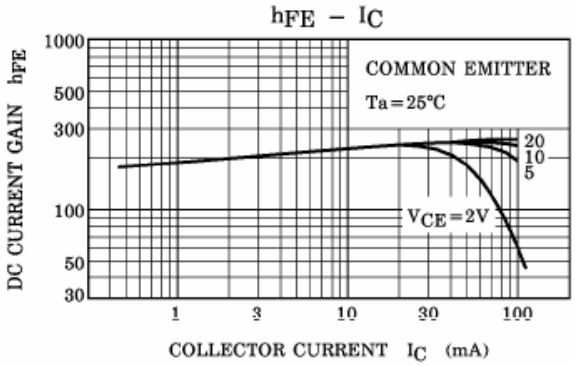
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100μA , I_E=0	200		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 10 mA, I_B=0 2SC2230	160		V
		2SC2230A	180		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 10μA, I_C =0	5		V
Collector cut-off current	I_{CBO}	V_{CB}=200V, IE=0		0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, IC=0		0.1	μA
DC current gain	h_{FE}	V_{CE}=10 V, IC= 10mA	120	400	
	h_{FE2}	V_{CE}=10 V, IC= 50mA	80		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C= 50m A, I_B= 5mA		0.5	V
Base-emitter voltage	V_{BE}	I_C= 1 mA, VCE= 10V	0.5	0.7	V
Transition frequency	f_T	V_{CE}= 10 V, I_C= 10mA	50		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz		7	pF

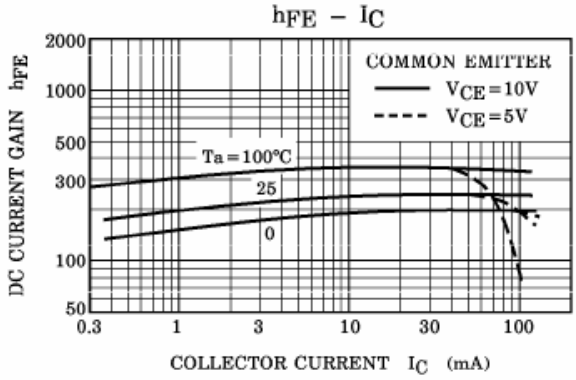
CLASSIFICATION OF h_{FE1}

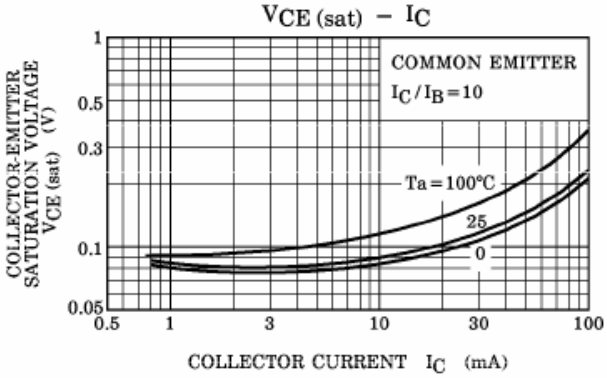
Rank	Y	GR
Range	120-240	200-400

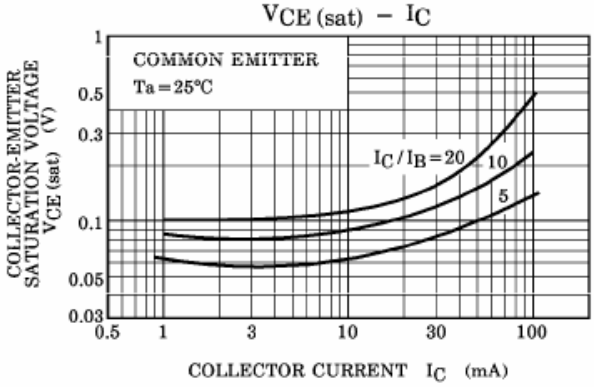
Typical Characteristics

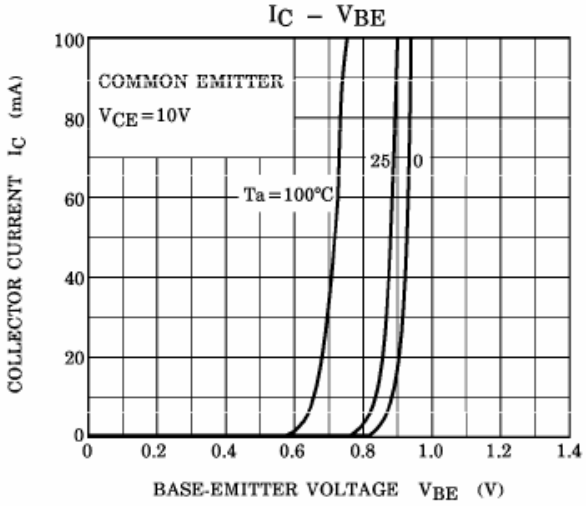


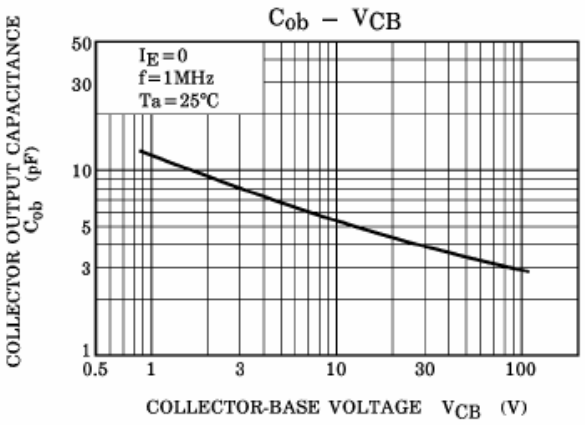


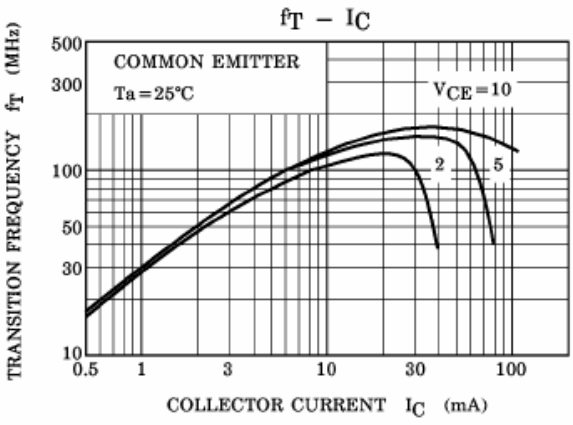


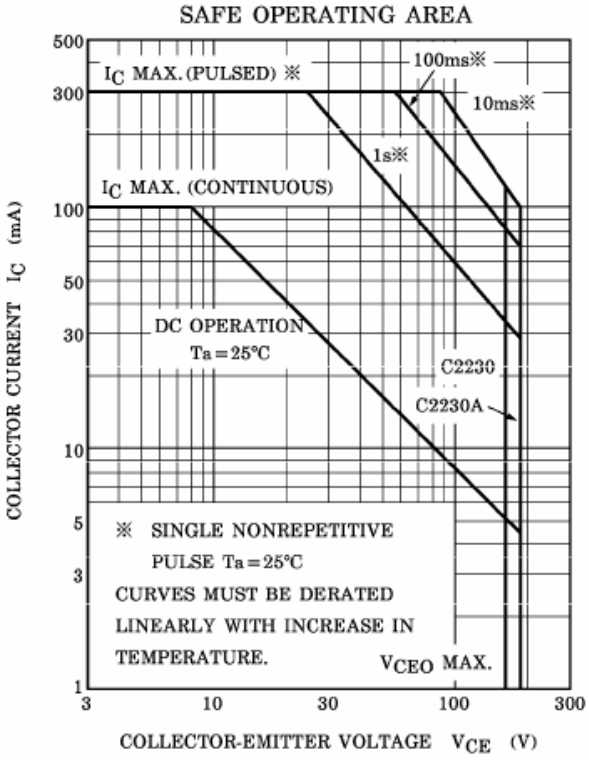







C_{ob} – V_{CB}
I_E=0
f=1MHz
Ta=25°C
COLLECTOR OUTPUT CAPACITANCE C_{ob} (pF)
50
30
10
5
3
1
0.5
1
3
10
30
100
COLLECTOR-BASE VOLTAGE V_{CB} (V)


f_T – I_C
COMMON EMITTER
Ta=25°C
V_{CE}=10
2
5
TRANSITION FREQUENCY f_T (MHz)
500
300
100
50
30
10
0.5
1
3
10
30
100
COLLECTOR CURRENT I_C (mA)


SAFE OPERATING AREA
I_C MAX. (PULSED) ※
100ms※
10ms※
1s※
I_C MAX. (CONTINUOUS)
DC OPERATION
Ta=25°C
C2230
C2230A
※ SINGLE NONREPETITIVE
PULSE Ta=25°C
CURVES MUST BE DERATED
LINEARLY WITH INCREASE IN
TEMPERATURE.
V_{CEO} MAX.
COLLECTOR CURRENT I_C (mA)
500
300
100
50
30
10
5
3
1
3
10
30
100
300
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)