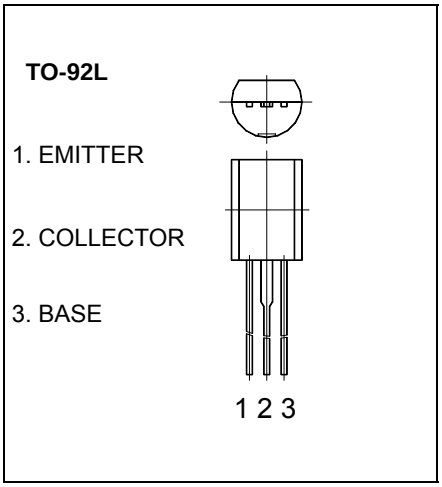
TIGER ELECTRONIC CO.,LTD

TO-92L Plastic-Encapsulate Transistors

2SA1020 TRANSISTOR (PNP)



FEATURES

Power amplifier applications

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-50	V
V_{CEO}	Collector-Emitter Voltage	-50	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current –Continuous	-2	A
P_C	Collector Power Dissipation	900	mW
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

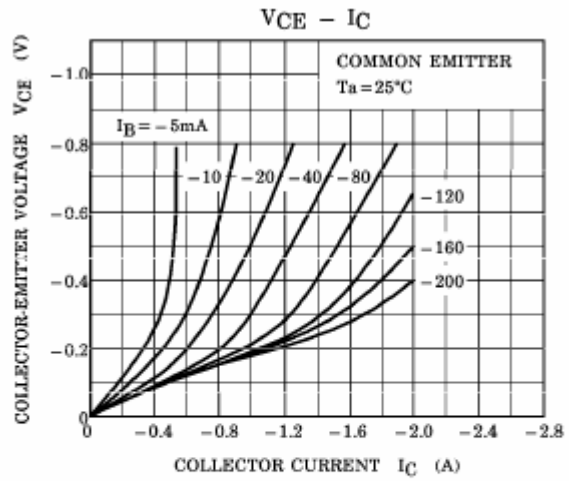
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C =-100μA,I_E=0	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C =-10mA,I_B=0	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-100μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-50V,I_E=0			-1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V,I_C=0			-1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=-2V,I_C=-0.5A	70		240	
	$h_{FE(2)}$	V_{CE}=-2V,I_C=-1.5A	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-1A,I_B=-50mA			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-1A,I_B=-50mA			-1.2	V
Transition frequency	f_T	V_{CE}=-2V,I_C=-500mA		100		MHz
Collector output capacitance	C_{ob}	V_{CB}=-10V,I_E=0,f=1MHz		40		pF
Turn-on time	t_{on}	V_{CC}=-30V,I_{B1}=-I_{B2}=-0.05A, I_C=-1A		0.1		μs
Storage time	ts			1		μs
Fall time	tf			0.1		μs

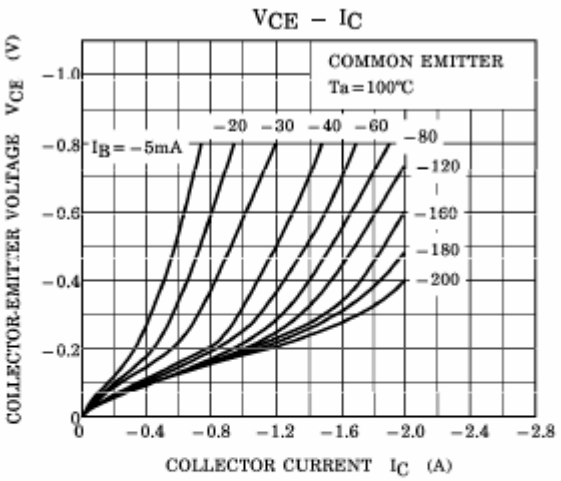
CLASSIFICATION OF $h_{FE(1)}$

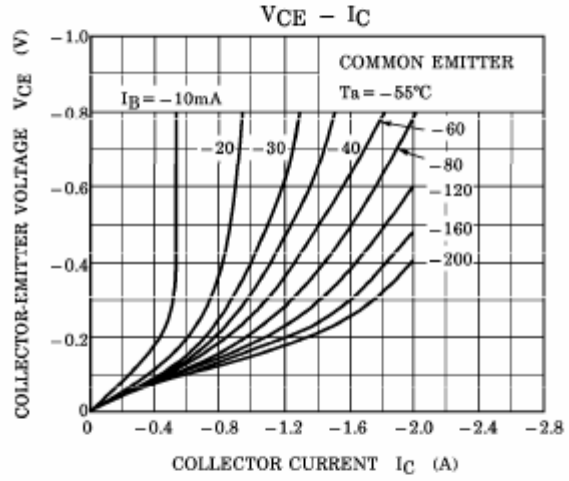
Rank	O	Y
Range	70-140	120-240

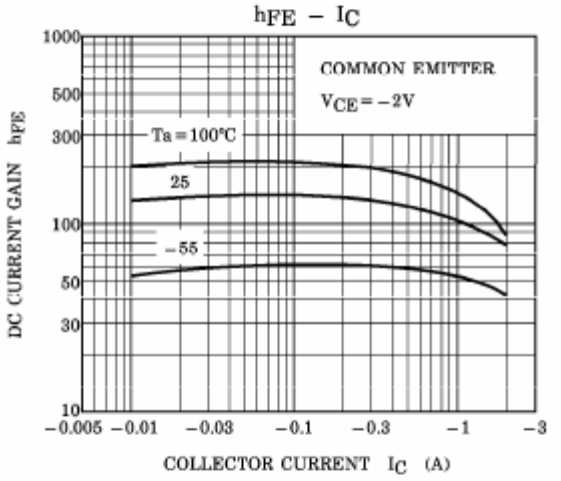
Typical Characteristics

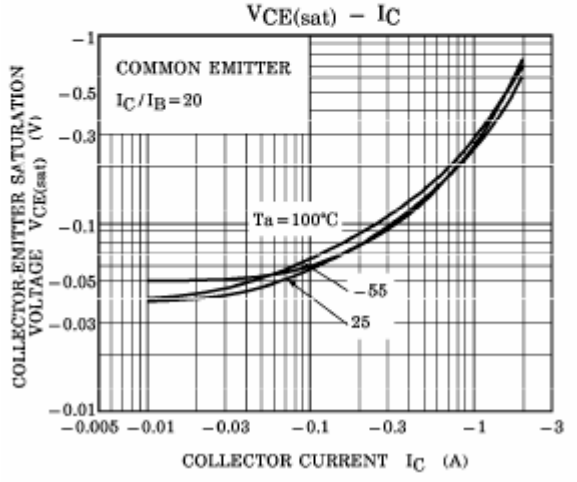
2SA1020

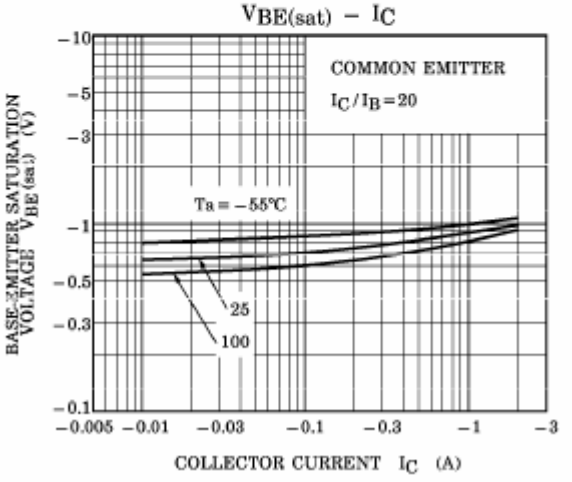


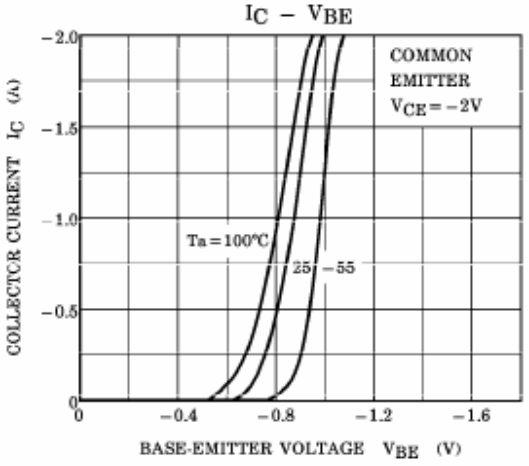


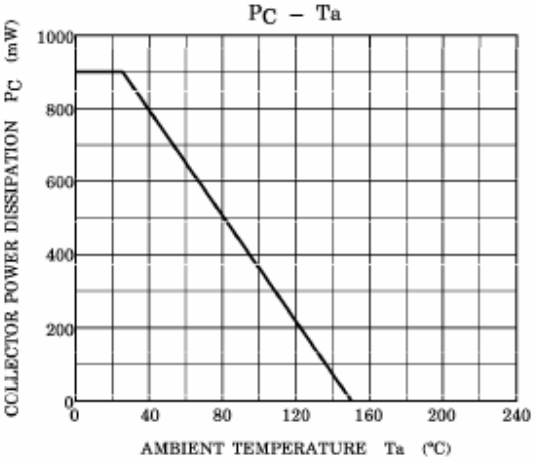


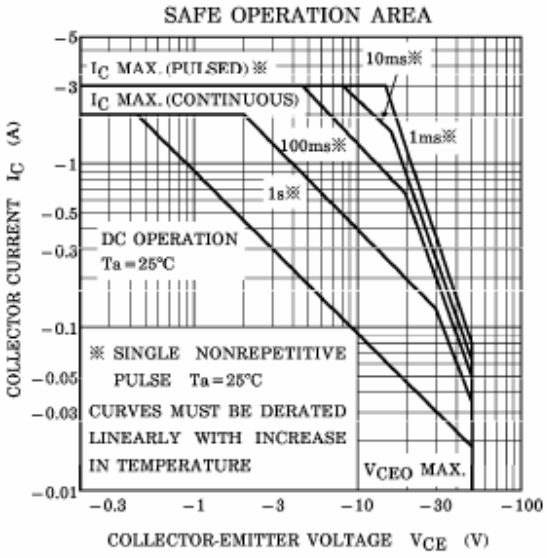







I_C – V_{BE}
COMMON EMITTER
V_{CE} = −2V
Ta = 100°C
25
−55
COLLECTOR CURRENT I_C (A)
BASE-EMITTER VOLTAGE V_{BE} (V)
−2.0
−1.5
−1.0
−0.5
0
−0.4
−0.8
−1.2
−1.6


P_C – Ta
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE Ta (°C)
1000
800
600
400
200
0
0
40
80
120
160
200
240


SAFE OPERATION AREA
I_C MAX. (PULSED) ※
I_C MAX. (CONTINUOUS)
10ms※
1ms※
100ms※
1s※
DC OPERATION
Ta = 25°C
※ SINGLE NONREPETITIVE PULSE Ta = 25°C
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE
V_{CEO} MAX.
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
−5
−3
−1
−0.5
−0.3
−0.1
−0.05
−0.03
−0.01
−0.3
−1
−3
−10
−30
−100