2SC2412K TRANSISTOR

(NPN) **FEATURES**

· **Low C_{ob} ,C_{ob} = 2.0 pF (Typ).**

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

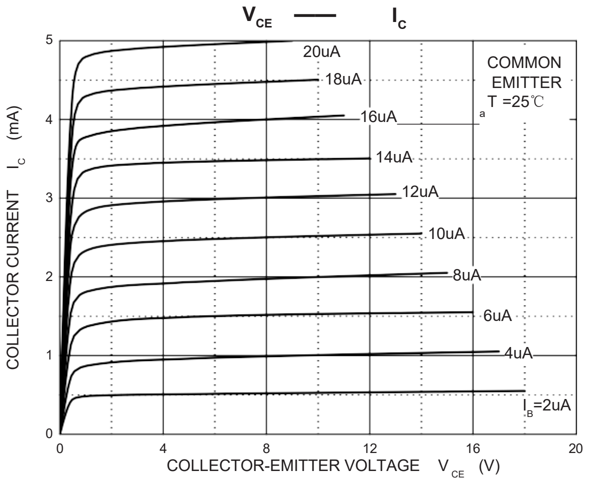
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	150	mA
P_C	Collector Power Dissipation	400	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	312.5	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

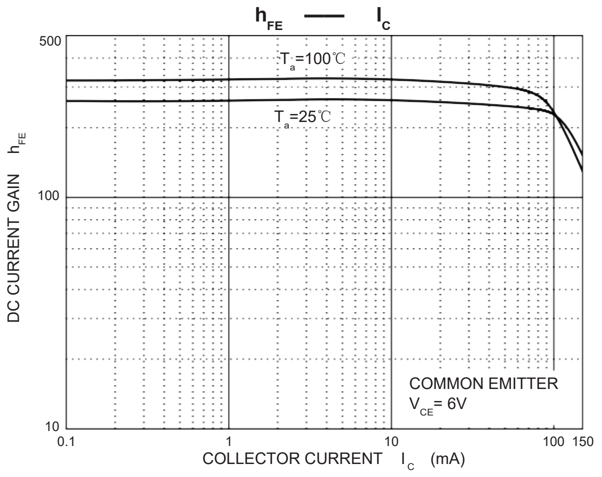
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

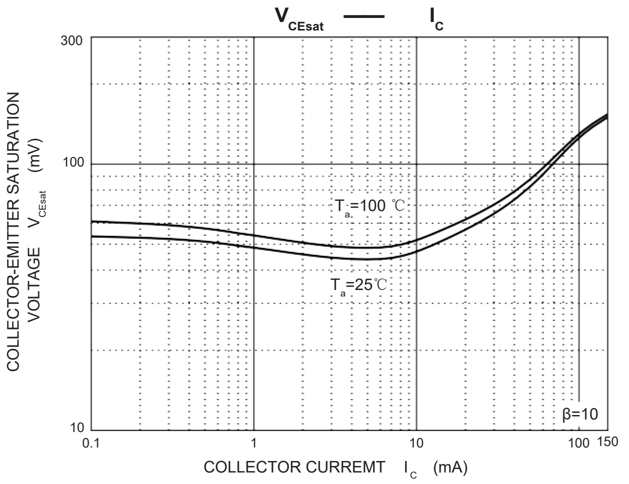
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=50μA,I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=50μA,I_C=0	7			V
Collector cut-off current	I_{CBO}	V_{CB}=60V,I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=7V,I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}=6V,I_C=1mA	120		560	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=50mA,I_B=5mA			0.4	V
Transition frequency	f_T	V_{CE}=12V,I_C=-2mA,f=100MHz		150		MHz
Collector output capacitance	C_{ob}	V_{CB}=12V,I_E=0,f=1MHz		2.0	3.5	pF

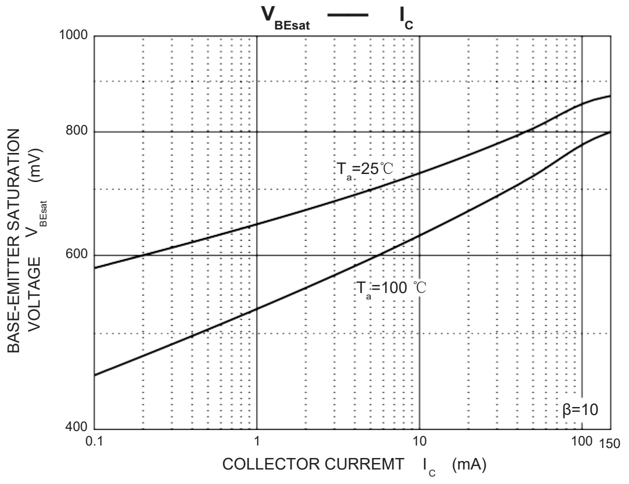
CLASSIFICATION OF h_{FE}

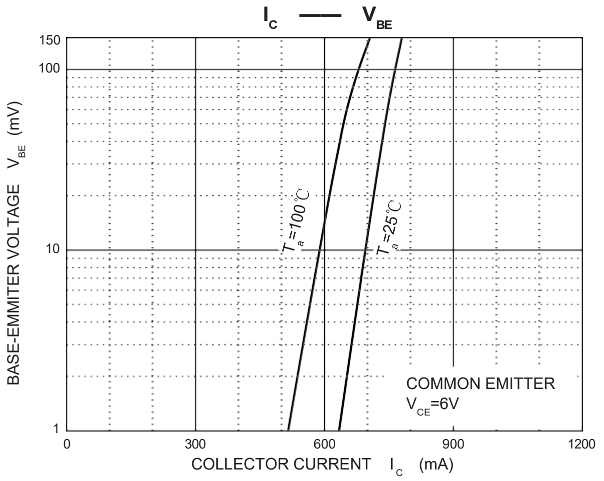
Rank	Q	R	S
Range	120 - 270	180 - 390	270 - 560
Marking	BQ	BR	BS

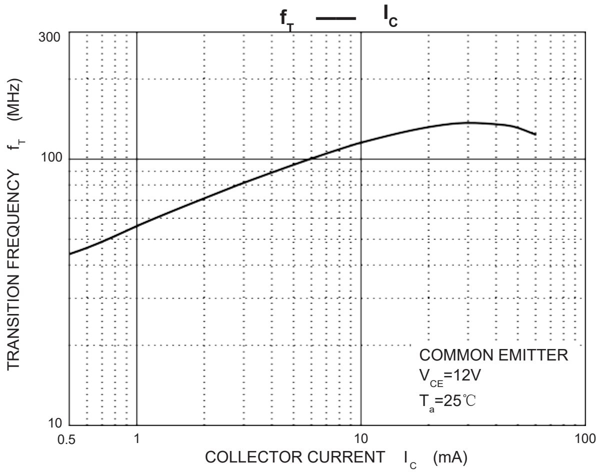

V_{CE} — I_C
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
0
1
2
3
4
5
0
4
8
12
16
20
20uA
18uA
16uA
14uA
12uA
10uA
8uA
6uA
4uA
I_B=2uA
COMMON EMITTER
T_a=25℃

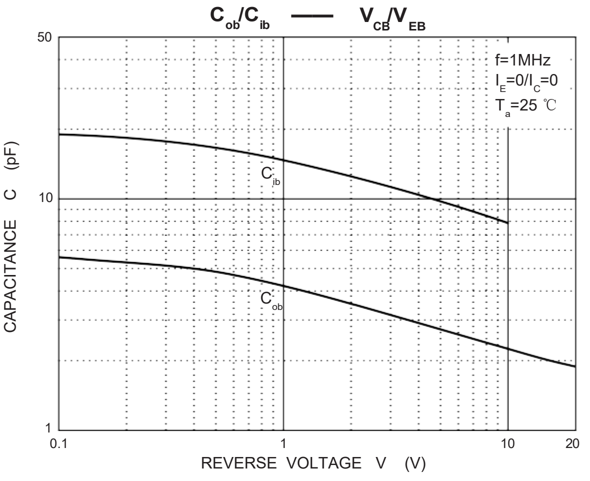

h_{FE} — I_C
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)
10
100
500
0.1
1
10
100
150
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}= 6V

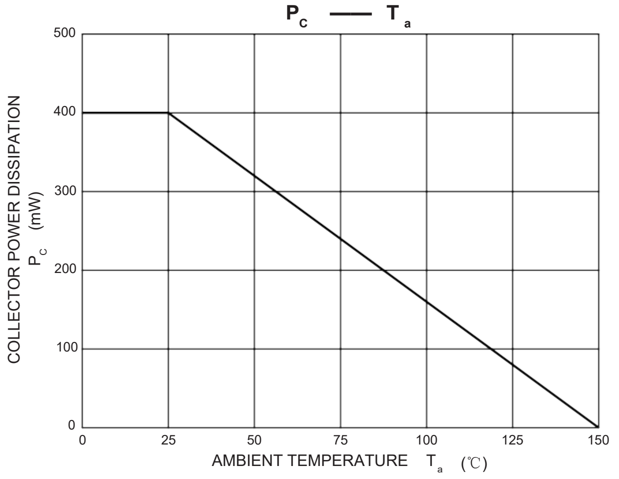

V_{CEsat} — I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURREMT I_C (mA)
10
100
300
0.1
1
10
100
150
T_a=100 ℃
T_a=25℃
β=10


V_{BEsat} — I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
COLLECTOR CURREMT I_C (mA)
400
600
800
1000
0.1
1
10
100
150
T_a=25℃
T_a=100 ℃
β=10


I_C — V_{BE}
BASE-EMMITER VOLTAGE V_{BE} (mV)
COLLECTOR CURRENT I_C (mA)
1
10
100
150
0
300
600
900
1200
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}=6V


f_T — I_C
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)
10
100
300
0.5
1
10
100
COMMON EMITTER
V_{CE}=12V
T_a=25℃


C_{ob}/C_{ib} — V_{CB}/V_{EB}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)
1
10
50
0.1
1
10
20
f=1MHz
I_E=0/I_C=0
T_a=25 ℃
C_{ib}
C_{ob}


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE T_a (℃)
0
100
200
300
400
500
0
25
50
75
100
125
150