1.BASE

2.COLLECTOR

3.EMITTER

SOT-23-3

2SC2714 TRANSISTOR (NPN)

FEATURES

- **Small reverse Transfer Capacitance:Cre=0.7pF(typ.)**
- **Low Noise Figure:NF=2.5dB(typ.) (f=100MHz)**

MAXIMUM RATINGS (T_a=25℃unless otherwise noted)

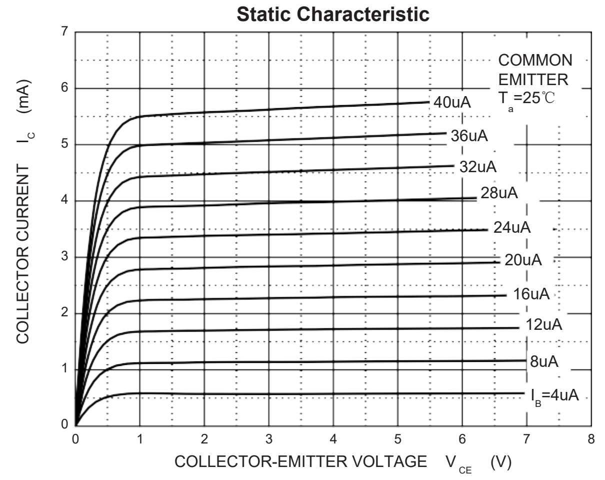
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current -Continuous	20	mA
P_C	Collector Power Dissipation	100	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	1000	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

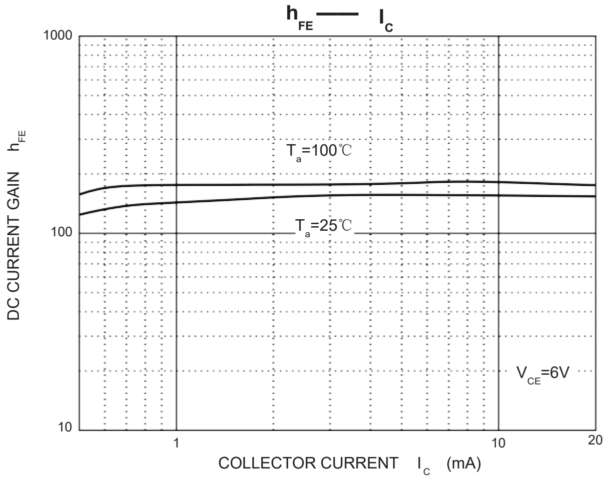
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

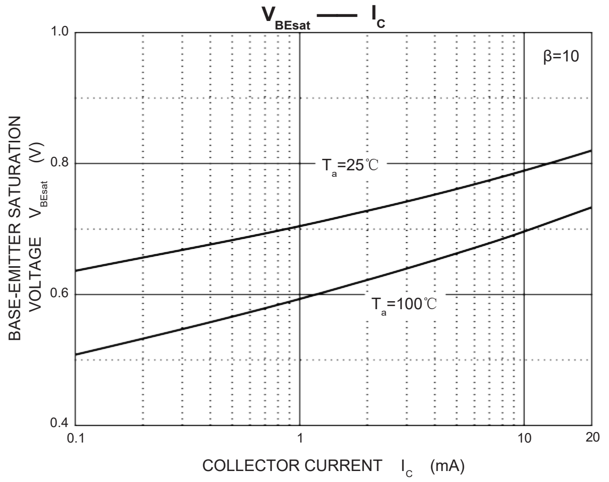
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA,I_E=0	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	4			V
Collector cut-off current	I_{CBO}	V_{CB}=18V,I_E=0			0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V,I_C=0			0.5	μA
DC current gain	h_{FE}	V_{CE}=6V,I_C=1mA	40		200	
Transition frequency	f_T	V_{CE}=6V,I_C=1mA		550		MHz
Reverse Transfer capacitance	C_{re}	V_{CB}=6V,I_E=0,f=1MHz		0.7		pF
Noise figure	NF	V_{CE}=6V,I_c=1mA,f=100MHZ		2.5	5	dB

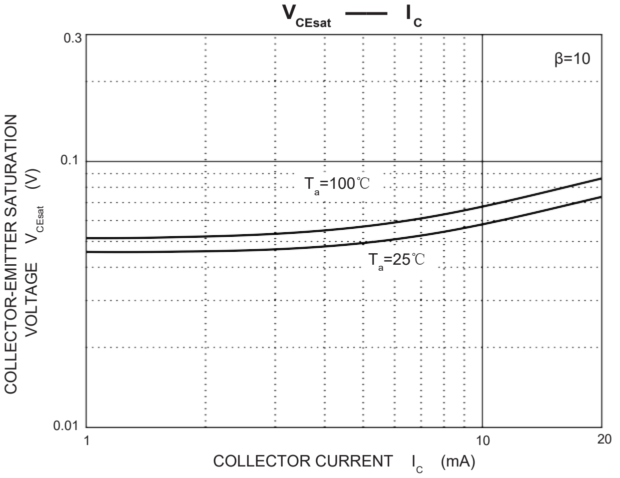
CLASSIFICATION OF h_{FE}

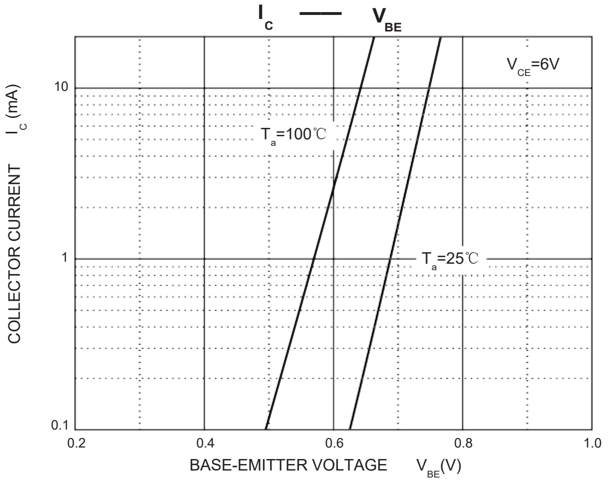
Rank	R	O	Y
Range	40-80	70-140	100-200
Marking	QR	QO	QY

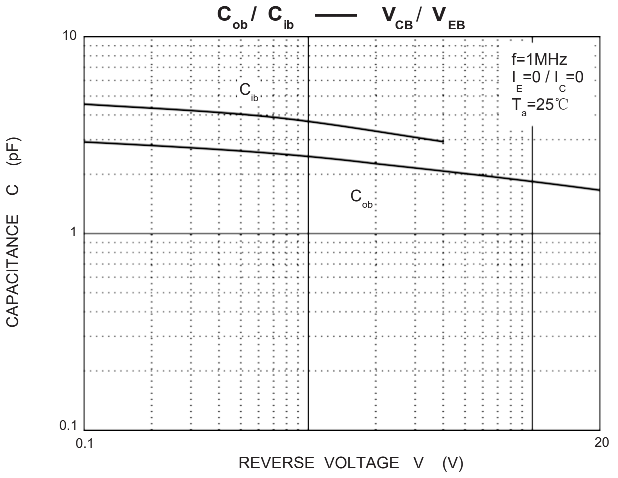

Static Characteristic
COMMON EMITTER
T_a=25℃
40uA
36uA
32uA
28uA
24uA
20uA
16uA
12uA
8uA
I_B=4uA
COLLECTOR CURRENT I_C (mA)
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
7
8
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

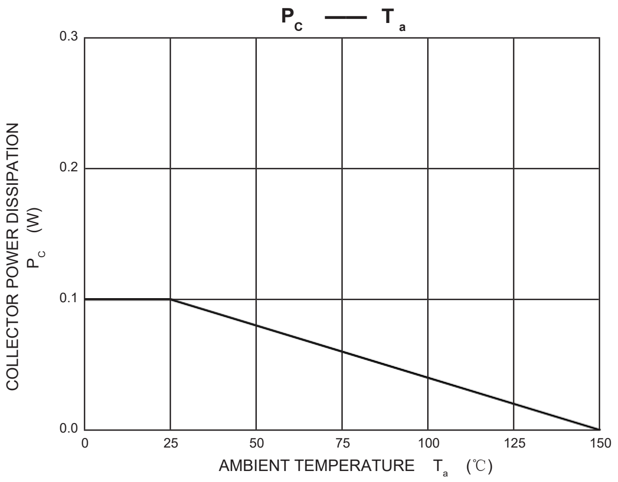

h_{FE} —— I_C
DC CURRENT GAIN h_{FE}
1000
100
10
T_a=100℃
T_a=25℃
V_{CE}=6V
1
10
20
COLLECTOR CURRENT I_C (mA)


V_{BEsat} —— I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
1.0
0.8
0.6
0.4
β=10
T_a=25℃
T_a=100℃
0.1
1
10
20
COLLECTOR CURRENT I_C (mA)


V_{CEsat} —— I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (V)
0.3
0.1
0.01
β=10
T_a=100℃
T_a=25℃
1
10
20
COLLECTOR CURRENT I_C (mA)


I_C —— V_{BE}
COLLECTOR CURRENT I_C (mA)
10
1
0.1
V_{CE}=6V
T_a=100℃
T_a=25℃
0.2
0.4
0.6
0.8
1.0
BASE-EMITTER VOLTAGE V_{BE}(V)


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


P_C —— T_a
COLLECTOR POWER DISSIPATION P_C (W)
0.3
0.2
0.1
0.0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)