2SD601A TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

FEATURE

- High h_{FE}
- Low $V_{CE(sat)}$
- For general amplification
- Complementary to 2SB709A

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

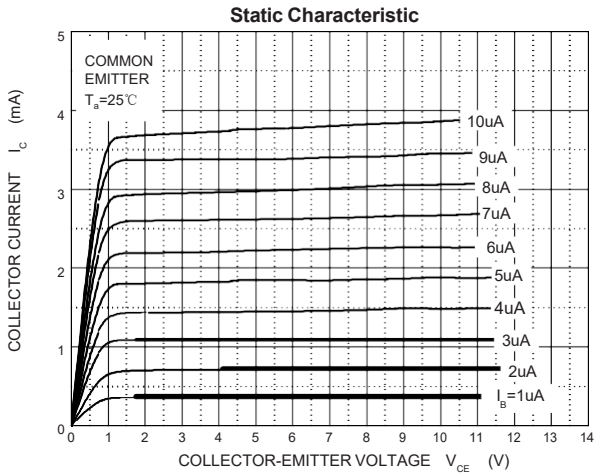
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	100	mA
P_C	Collector Power Dissipation	200	mW
$R_{\Theta JA}$	Thermal Resistance from Junction to Ambient	625	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

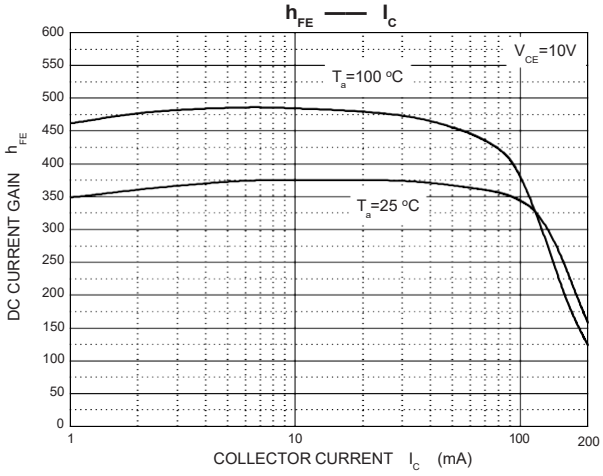
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

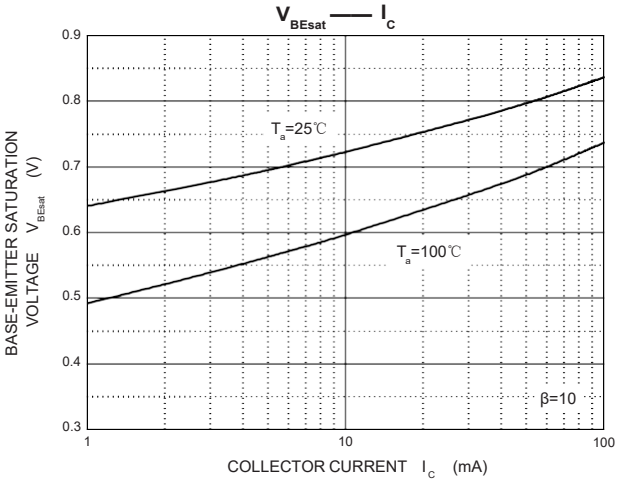
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=2mA, I_B=0	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	7			V
Collector cut-off current	I_{CBO}	V_{CB}=20V, I_E=0			0.1	μA
Collector cut-off current	I_{CEO}	V_{CE}=10V, I_B=0			100	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=2V, I_C=100mA	90			
	$h_{FE(2)}$	V_{CE}=10V, I_C=2mA	160		460	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=100mA, I_B=10mA			0.3	V
Transition frequency	f_T	V_{CE}=10V,I_C=2mA,f=200MHz		150		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz		3.5		pF

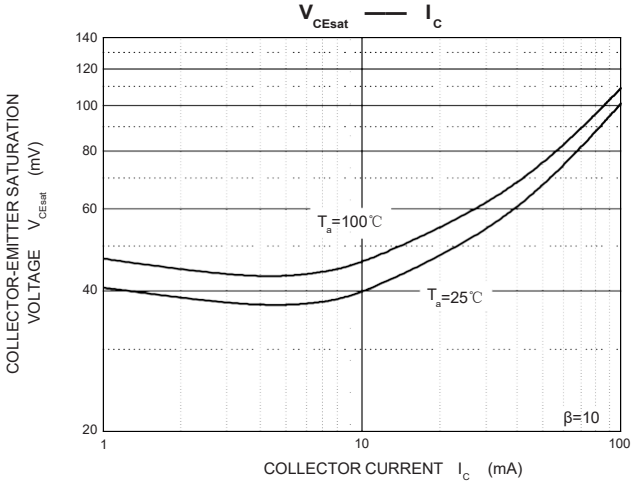
CLASSIFICATION of $h_{FE(2)}$

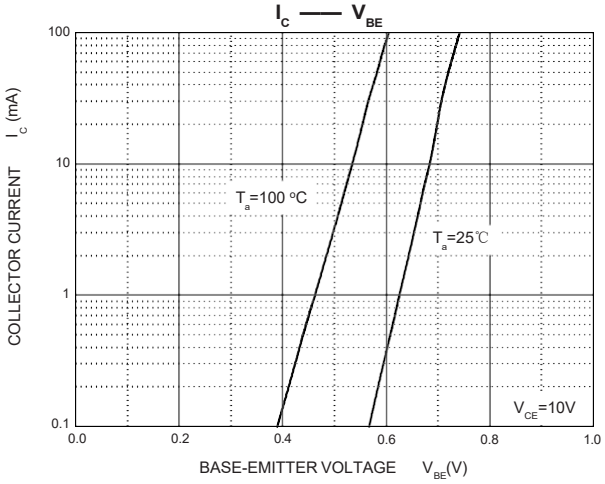
Rank	Q	R	S
Range	160-260	210-340	290-460
Marking	**ZQ**	**ZR**	**ZS**

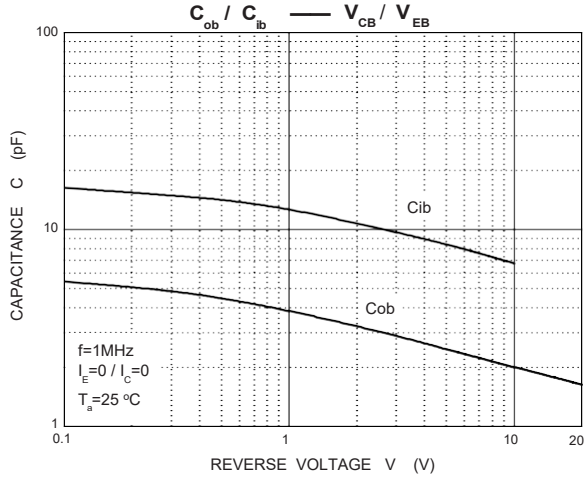

Static Characteristic
COMMON EMITTER
Ta=25℃
10uA
9uA
8uA
7uA
6uA
5uA
4uA
3uA
2uA
IB=1uA
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)

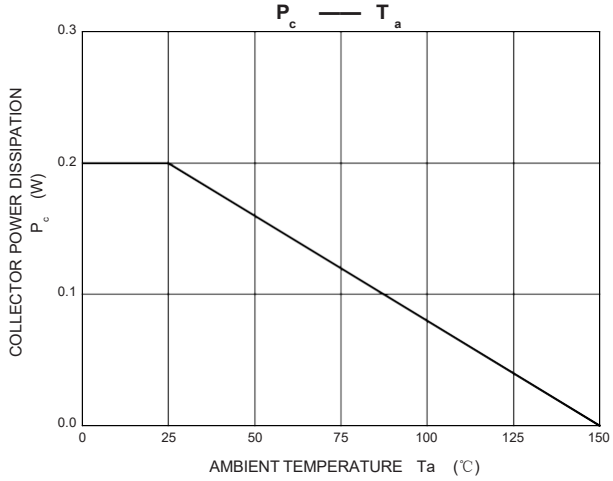

hFE — IC
VCE=10V
Ta=100 ℃
Ta=25 ℃
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)


VBEsat — IC
Ta=25℃
Ta=100℃
β=10
BASE-EMITTER SATURATION VOLTAGE VBEsat (V)
COLLECTOR CURRENT IC (mA)


VCEsat — IC
Ta=100℃
Ta=25℃
β=10
COLLECTOR-EMITTER SATURATION VOLTAGE VCEsat (mV)
COLLECTOR CURRENT IC (mA)


IC — VBE
Ta=100 ℃
Ta=25℃
VCE=10V
COLLECTOR CURRENT IC (mA)
BASE-EMITTER VOLTAGE VBE(V)


Cob / Cib — VCB / VEB
Cib
Cob
f=1MHz
IE=0 / IC=0
Ta=25 ℃
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


Pc — Ta
COLLECTOR POWER DISSIPATION Pc (W)
AMBIENT TEMPERATURE Ta (℃)