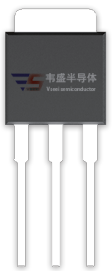
2SD1899-Z TRANSISTOR (NPN)



TO-251

1.BASE
2.COLLECTOR
3.EMITTER

FEATURES

- High h_{FE}
- Low $V_{CE(sat)}$

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

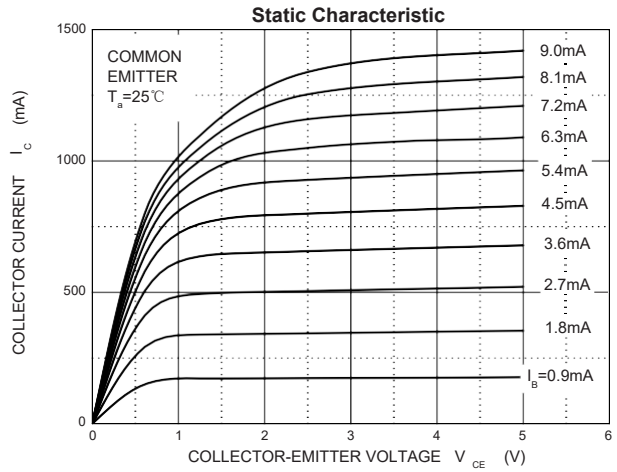
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current -Continuous	3	A
P_C	Collector Power Dissipation	1	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55-150	℃

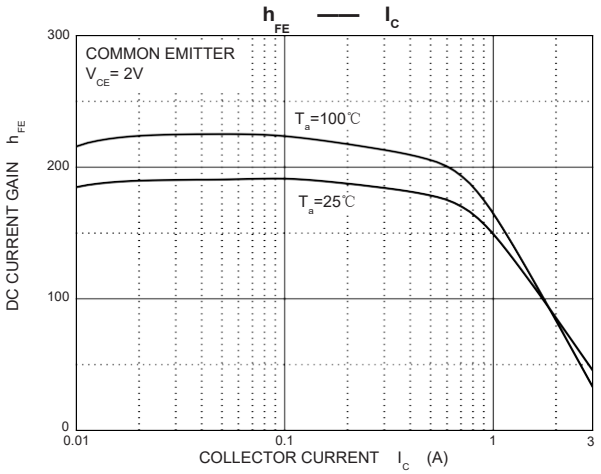
ELECTRICAL CHAR ACTERISTICS (T_a= 25℃ unless otherwise specified)

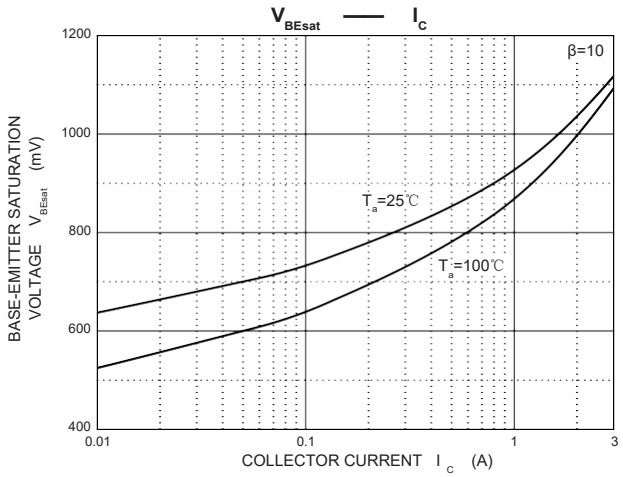
Parameter		Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage		$V_{(BR)CBO}$	I_C=100μA,I_E=0	60			V
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	I_C =1mA,I_B=0	60			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	I_E=100μA,I_C=0	7			V
Collector cut-off current		I_{CBO}	V_{CB}=60V,I_E=0			10	μA
Emitter cut-off current		I_{EBO}	V_{EB}=7V,I_C=0			10	μA
DC current gain		$h_{FE(1)}$	V_{CE}=2V,I_C=200mA	60			
		$h_{FE(2)}$	V_{CE}=2V,I_C=600mA	100		400	
		$h_{FE(3)}$	V_{CE}=2V,I_C=2A	50			
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=1.5A,I_B=150mA			0.25	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=1.5A,I_B=150mA			1.2	V
Transition frequency		f_T	V_{CE}=5V,I_C=1.5A		120		MHz
Collector output capacitance		C_{ob}	V_{CB}=10V,I_E=0,f=1MHz		30		pF
Switching Time	Turn on Time	t_{on}	V_{CC}=10V,I_C=1A,I_{B1}=-I_{B2}=-0.1A			0.5	μs
	Storage Time	t_{stg}				2.0	
	Fall Time	t_f				0.5	

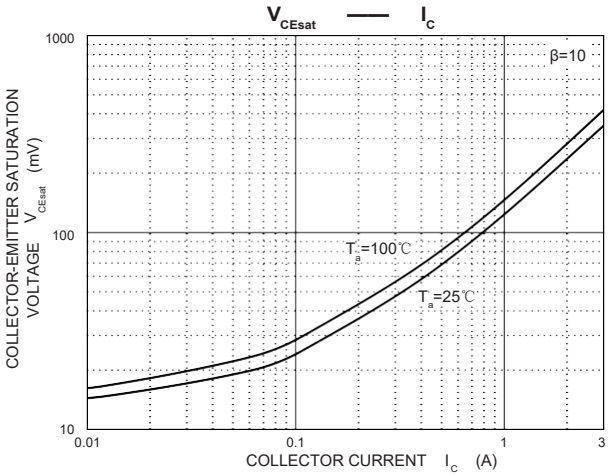
CLASSIFICATION OF $h_{FE(2)}$

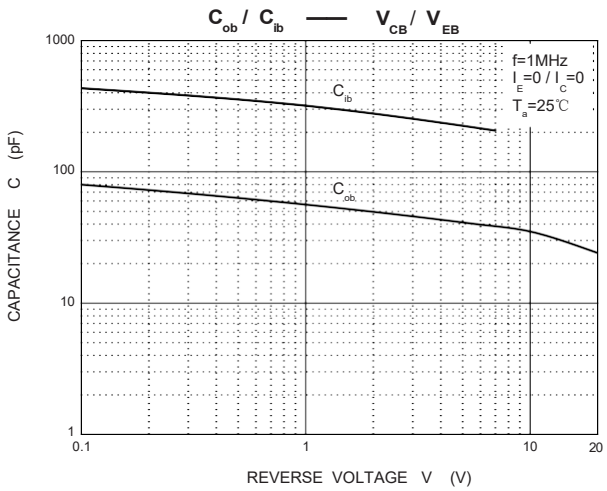
Rank	M	L	K
Range	100-200	160-320	200-400

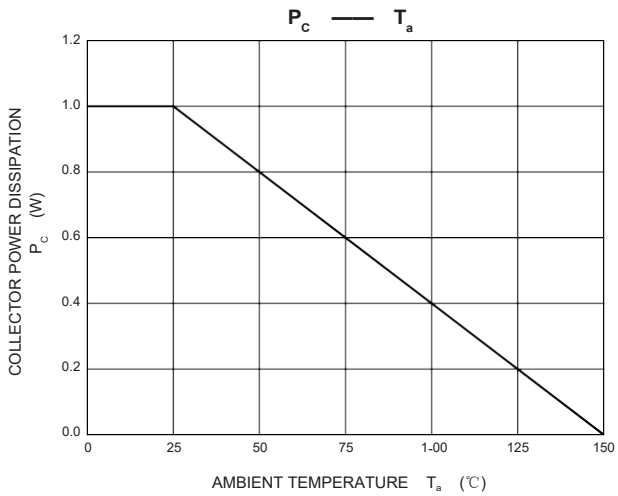

Static Characteristic
COMMON EMITTER
Ta=25℃
9.0mA
8.1mA
7.2mA
6.3mA
5.4mA
4.5mA
3.6mA
2.7mA
1.8mA
IB=0.9mA
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)


hFE — IC
COMMON EMITTER
VCE= 2V
Ta=100℃
Ta=25℃
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)


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


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


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


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