2SD2391 TRANSISTOR (NPN)

SOT-89

FEATURES

Low $V_{CE(sat)}$

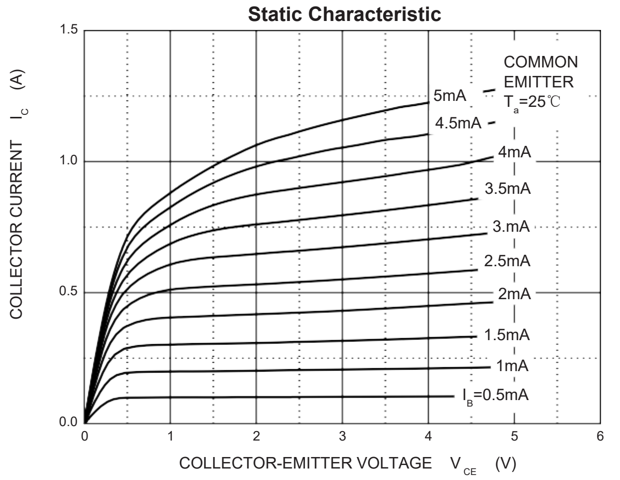
Marking: DT

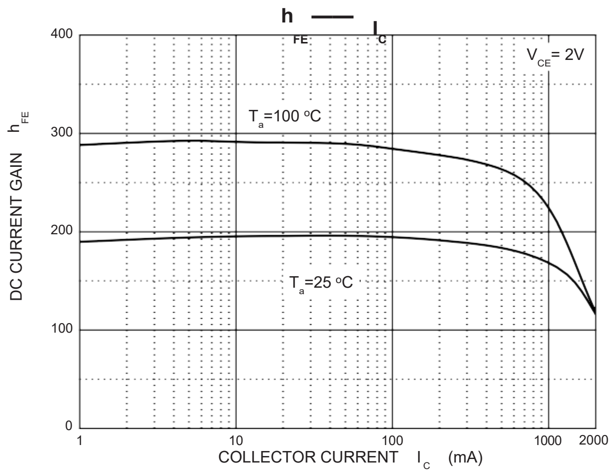
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

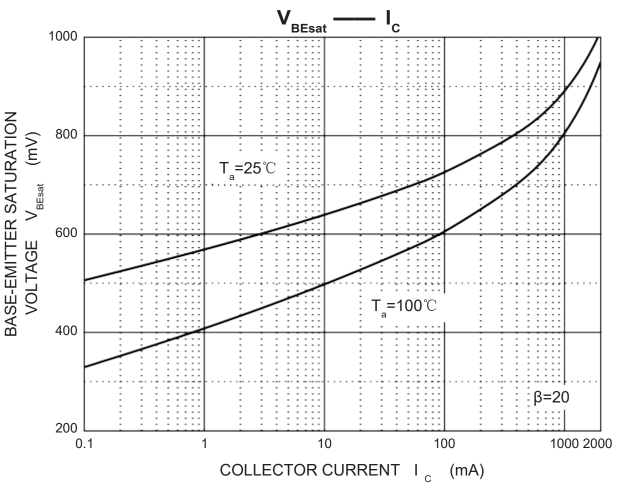
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	2	A
P_C	Collector Power Dissipation	0.5	W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55-150	℃

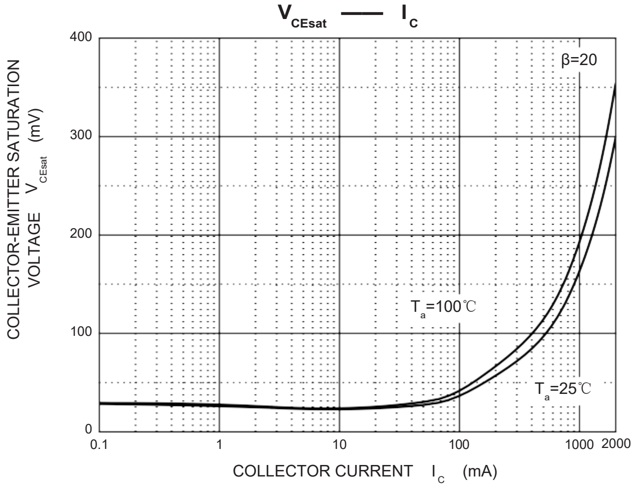
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

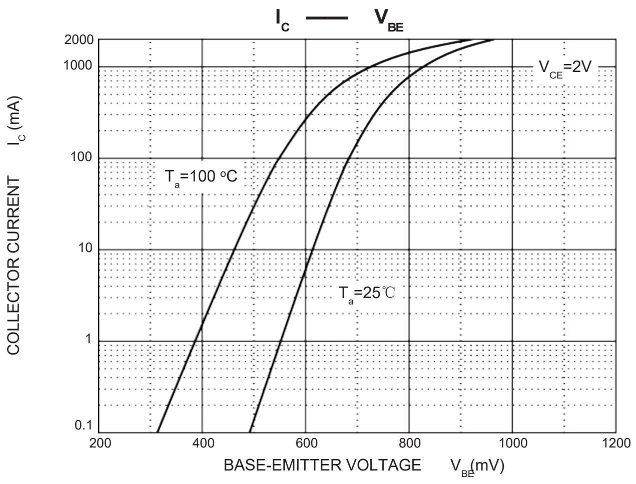
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=50μA,I_E=0	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C =1mA,I_B=0	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=50μA,I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=50V,I_E=0			0.1	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=0.5A	120		270	
	$h_{FE(2)}$	V_{CE}=2V,I_C=1.5A	45			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=1A,I_B=50mA			0.35	V
Transition frequency	f_T	V_{CE}=2V,I_C=0.5A, f=100MHz		210		MHz
Output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		21		pF

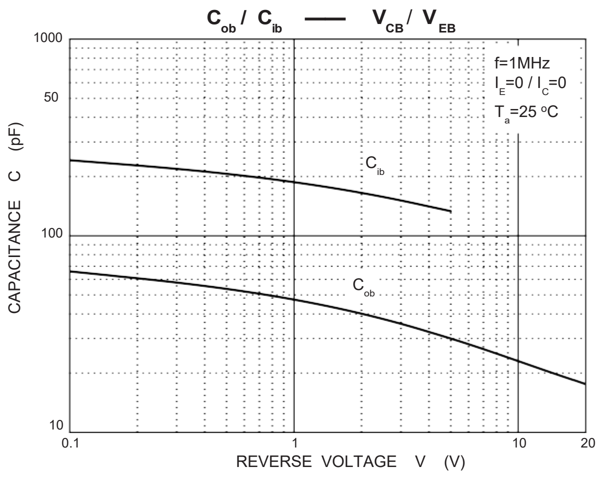

Static Characteristic
COLLECTOR CURRENT I_C (A)
1.5
1.0
0.5
0.0
0
1
2
3
4
5
6
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COMMON EMITTER
T_a=25℃
5mA
4.5mA
4mA
3.5mA
3.mA
2.5mA
2mA
1.5mA
1mA
I_B=0.5mA

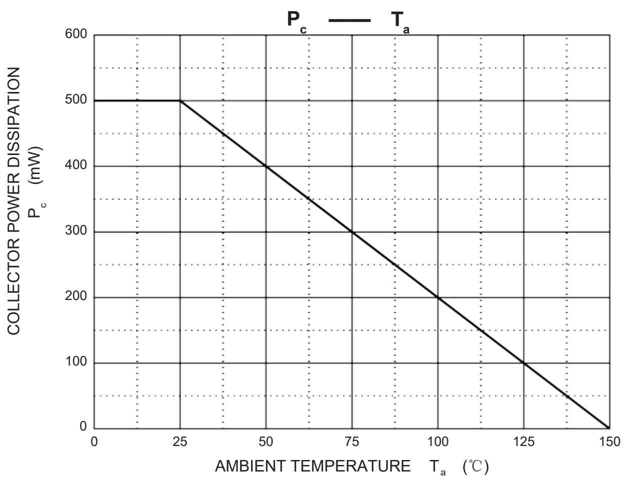

h_{FE} — I_C
DC CURRENT GAIN h_{FE}
400
300
200
100
0
1
10
100
1000
2000
COLLECTOR CURRENT I_C (mA)
V_{CE}= 2V
T_a=100 °C
T_a=25 °C


V_{BEsat} — I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
1000
800
600
400
200
0.1
1
10
100
1000 2000
COLLECTOR CURRENT I_C (mA)
T_a=25℃
T_a=100℃
β=20


V_{CEsat} — I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
400
300
200
100
0
0.1
1
10
100
1000
2000
COLLECTOR CURRENT I_C (mA)
β=20
T_a=100℃
T_a=25℃


I_C — V_{BE}
COLLECTOR CURRENT I_C (mA)
2000
1000
100
10
1
0.1
200
400
600
800
1000
1200
BASE-EMITTER VOLTAGE V_{BE}(mV)
V_{CE}=2V
T_a=100 °C
T_a=25℃


C_{ob} / C_{ib} — V_{CB} / V_{EB}
CAPACITANCE C (pF)
1000
50
100
10
0.1
1
10
20
REVERSE VOLTAGE V (V)
f=1MHz
I_E=0 / I_C=0
T_a=25 °C
C_{ib}
C_{ob}


P_c — T_a
COLLECTOR POWER DISSIPATION P_c (mW)
600
500
400
300
200
100
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)