2SD2396 TRANSISTOR (NPN)


TO-220C TO-220F

1.BASE

2.COLLECTOR

3.EMITTER

FEATURES

- Available inTO-220CF package
- Darling connection provides high dc current gain (h_{FE})
- Large collector power dissipation
- Low frequency and Power amplifier

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	3	A
P_C	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

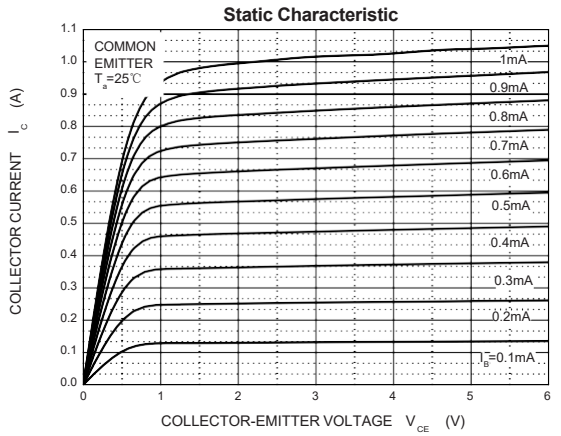
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

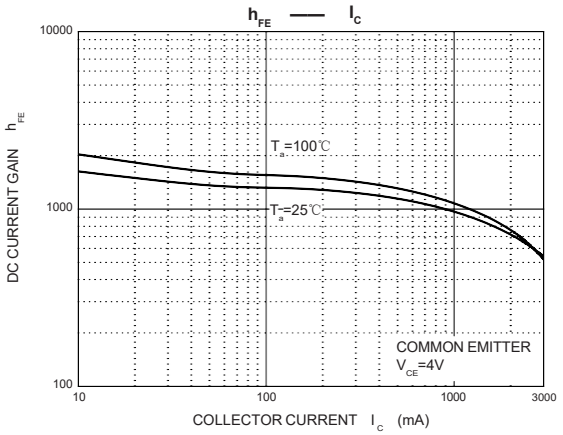
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltag	$V_{(BR)CBO}$	I_C=50μA, I_E=0	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA,I_B=0	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=50u A,I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=80V,I_E=0			100	μA
Emitter cut-off current	I_{EBO}	V_{EB}=6V,I_C=0			100	μA
DC current gain	h_{FE}^*	V_{CE}=4V, I_C=0.5A	400		2000	
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	I_C=2A,I_B=50mA			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=2A,I_B=50mA			1.5	V
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		55		pF
Transition frequency	f_T	V_{CE}=5V,I_C=0.2A,f=10MHz		40		MHz

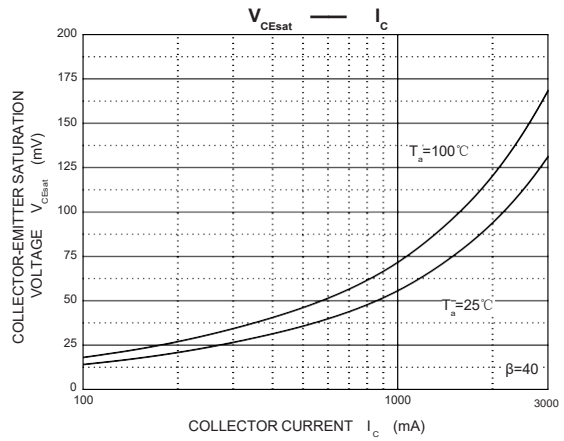
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

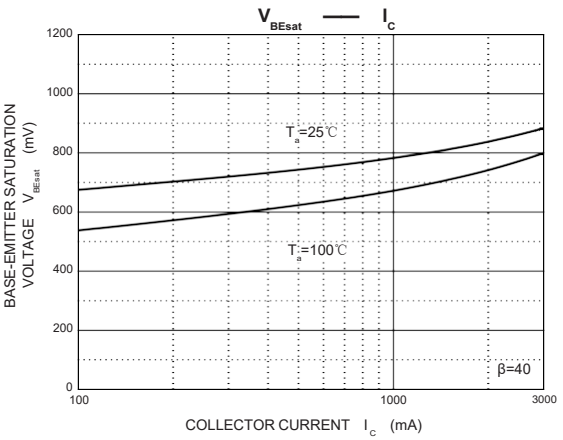
CLASSIFICATION OF h_{FE}^*

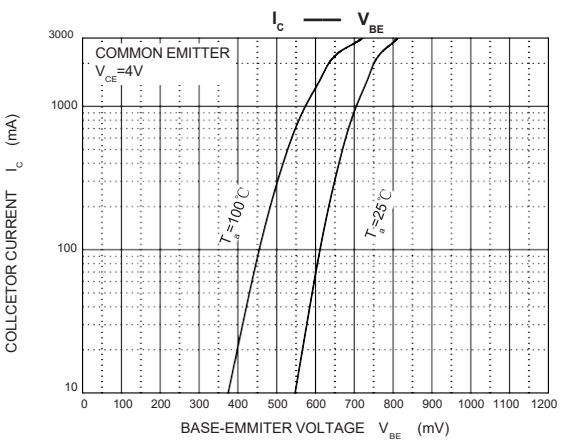
RANK	H	J	K
RANGE	400-800	600-1200	1000-2000

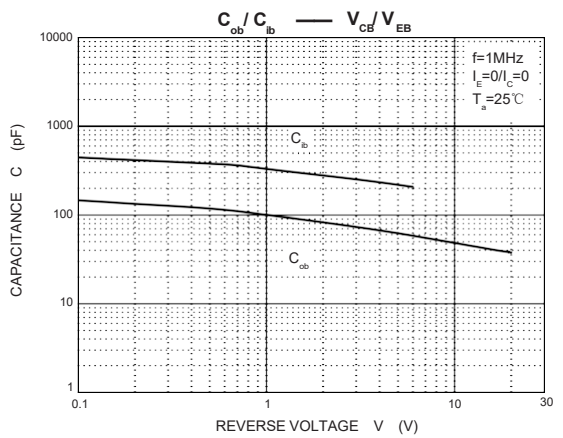

Static Characteristic
COMMON EMITTER
T_a=25℃
1mA
0.9mA
0.8mA
0.7mA
0.6mA
0.5mA
0.4mA
0.3mA
0.2mA
I_B=0.1mA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_CE (V)

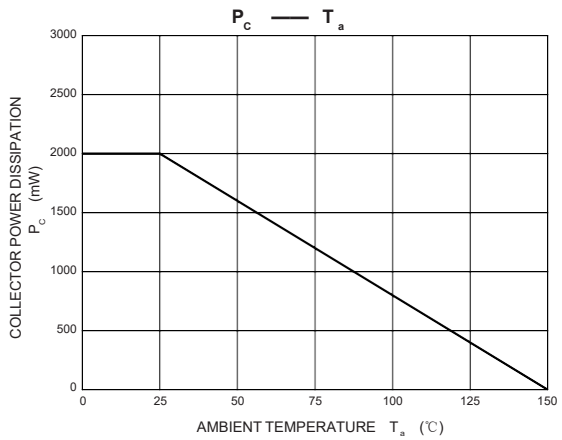

h_FE — I_C
T_a=100℃
T_a=25℃
COMMON EMITTER
V_CE=4V
DC CURRENT GAIN h_FE
COLLECTOR CURRENT I_C (mA)


V_CEsat — I_C
T_a=100℃
T_a=25℃
β=40
COLLECTOR-EMITTER SATURATION VOLTAGE V_CEsat (mV)
COLLECTOR CURRENT I_C (mA)


V_BEsat — I_C
T_a=25℃
T_a=100℃
β=40
BASE-EMITTER SATURATION VOLTAGE V_BEsat (mV)
COLLECTOR CURRENT I_C (mA)


I_C — V_BE
COMMON EMITTER
V_CE=4V
T_a=100℃
T_a=25℃
COLLCETOR CURRENT I_C (mA)
BASE-EMMITER VOLTAGE V_BE (mV)


C_ob / C_ib — V_CB / V_EB
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_ib
C_ob
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE T_a (℃)