Elektronische Bauelemente

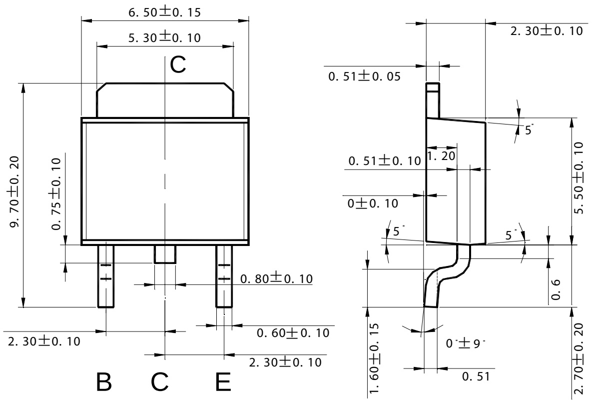
2SC5706 D

NPN Silicon

General Purpose Transistor

RoHS Compliant Product

TO-252



FEATURES

- Large current capacitance
- Low collector-to-emitter saturation voltage
- High-speed switching
- High allowable power dissipation

MARKING : 5706
(With Date Code)

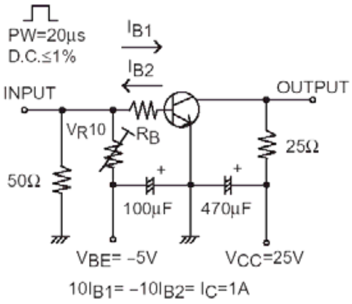
MAXIMUM RATINGS* T_A=25℃unless otherwise noted

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CES}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_{CBO}	5	A
Collector Current (Pulse)	I_{CP}	7.5	A
Base Current	I_B	1.2	A
Junction Temperature	T_j	+150	°C
Storage Temperature	T_{STG}	-55~+150	°C
Total Power Dissipation	P_D	0.8	W
	P_D(TC=25°C)	15	W

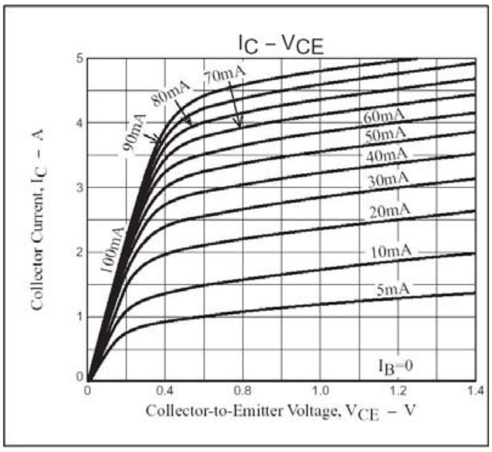
ELECTRICAL CHARACTERISTICS (Tamb=25°Cunless otherwise specified)

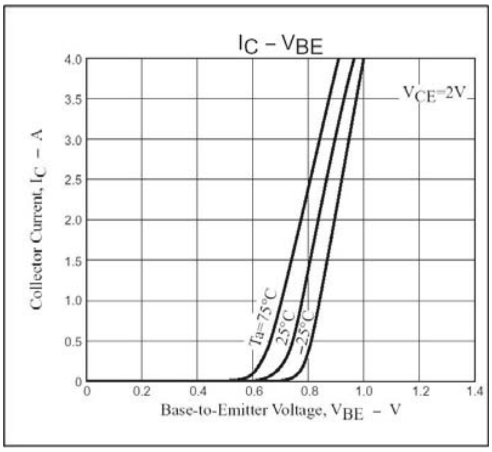
Parameter	Symbol	Min	Typ.	Max	Unit.	Test Conditions
Collector-Base Breakdown Voltage	BV_{CBO}	80	-	-	V	I_C=10μA, I_E=0
Collector-Emitter Breakdown Voltage	BV_{CES}	80	-	-	V	I_C=100μA, R_{BE}=0
Collector-Emitter Breakdown Voltage	BV_{CEO}	50	-	-	V	I_C=1mA, R_{BE}=∞
Emitter-Base Breakdown Voltage	BV_{EBO}	6	-	-	V	I_E=10μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}	-	-	1	μA	V_{CB}=40V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}	-	-	1	μA	V_{EB}=4V, I_C=0
Collector Saturation Voltage 1	*V_{CE}(sat)1	-	-	135	mV	I_C=1A, I_B=50mA
Collector Saturation Voltage 2	*V_{CE}(sat)2	-	-	240	mV	I_C=2A, I_B=100mA
Base Saturation Voltage	*V_{BE}(sat)	-	-	1.2	V	I_C=2A, I_B=100mA
DC Current Gain	*h_{FE}	200	-	560		V_{CE}=2V, I_C=500mA
Gain-Bandwidth Product	f_T	-	400	-	MHz	V_{CE}=10V, I_C=500mA
Output Capacitance	C_{ob}	-	15	-	pF	V_{CB}=10V, f=1MHz
Turn-On Time	ton	-	35	-	ns	See specified test circuit.
Storage Time	tstg	-	300	-	ns	See specified test circuit.
Fall Time	tf	-	20	-	ns	See specified test circuit.

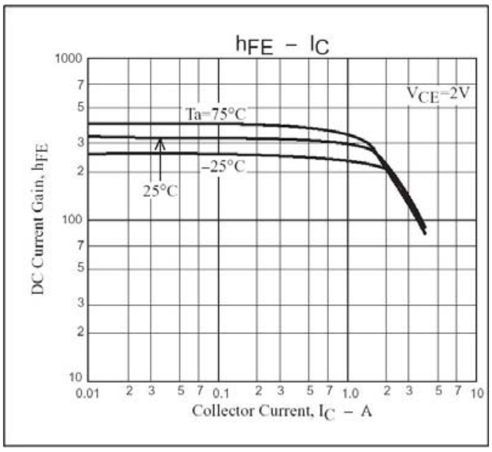
SwitchingTimeTest Circuit

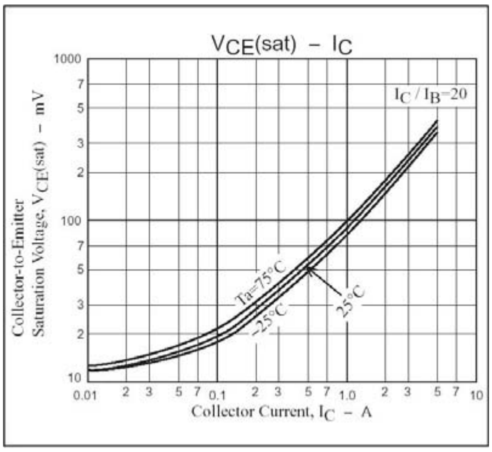


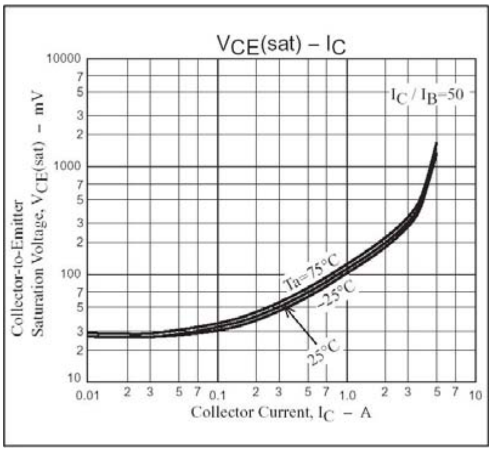
Characteristics Curve

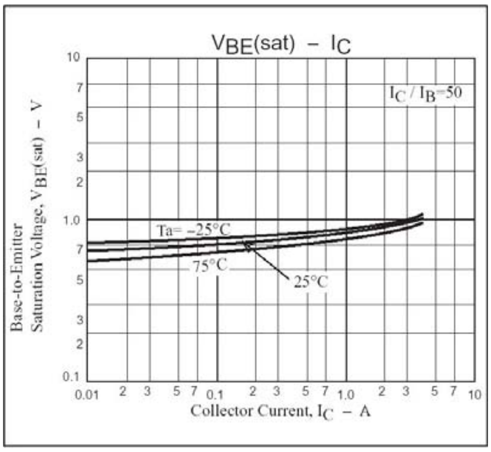


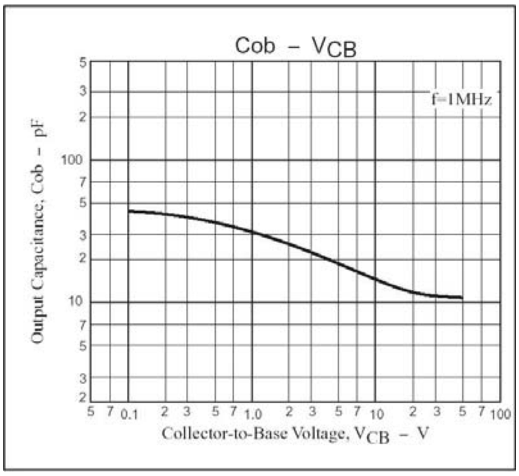


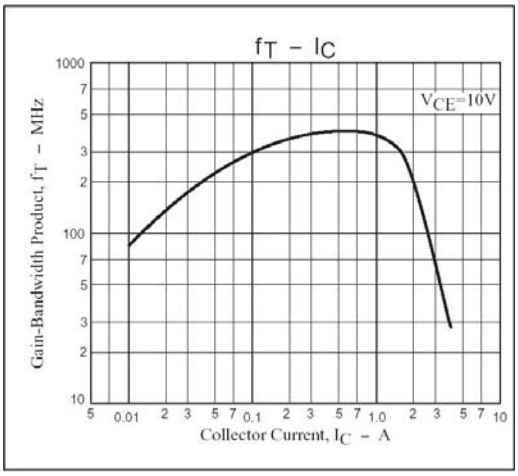


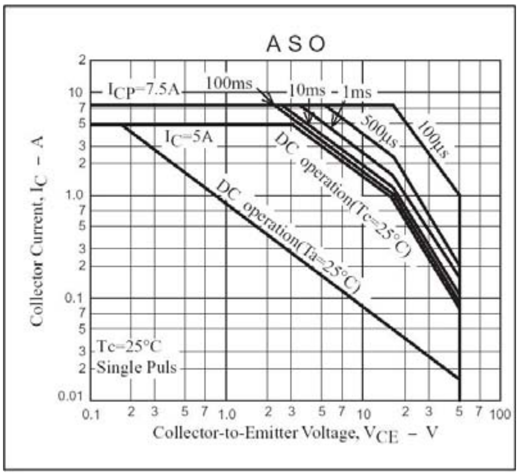


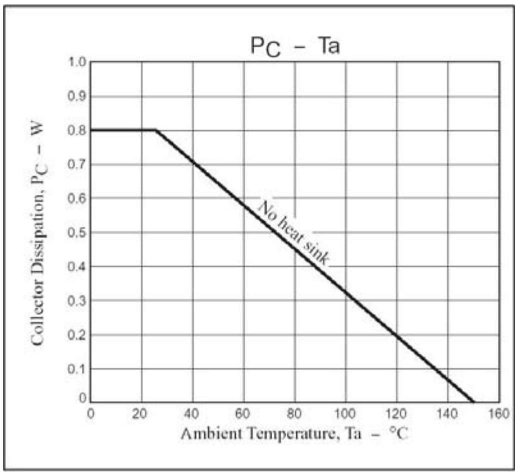


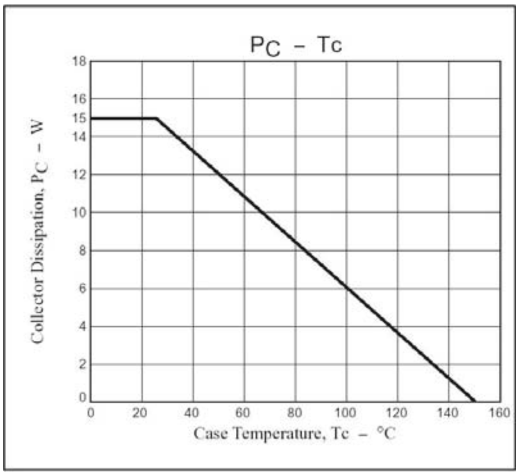



Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
5
3
2
100
7
5
3
2
10
7
5
3
2
5 7 0.1 2 3 5 7 1.0 2 3 5 7 10 2 3 5 7 100
Collector-to-Base Voltage, VCB – V


fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
1000
7
5
3
2
100
7
5
3
2
10
5 0.01 2 3 5 7 0.1 2 3 5 7 1.0 2 3 5 7 10
Collector Current, IC – A


A S O
ICP=7.5A
100ms
10ms
1ms
500µs
100µs
IC=5A
DC operation(Tc=25°C)
DC operation(Ta=25°C)
Tc=25°C
Single Puls
Collector Current, IC – A
2
10
7
5
3
2
1.0
7
5
3
2
0.1
7
5
3
2
0.01
0.1 2 3 5 7 1.0 2 3 5 7 10 2 3 5 7 100
Collector-to-Emitter Voltage, VCE – V


PC – Ta
No heat sink
Collector Dissipation, PC – W
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 20 40 60 80 100 120 140 160
Ambient Temperature, Ta – °C


PC – Tc
Collector Dissipation, PC – W
18
16
15
14
12
10
8
6
4
2
0
0 20 40 60 80 100 120 140 160
Case Temperature, Tc – °C