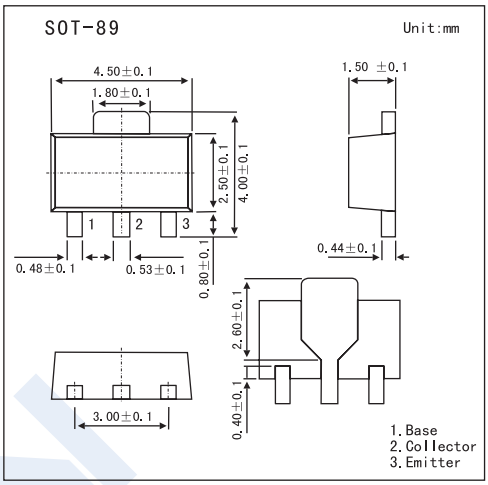
Power Switching Applications

2SC4541



■ Features

- Low Saturation Voltage: $V_{CE(sat)}$ = 0.5V (max) (I_C = 1.5A)
- High Speed Switching Time: t_{stg} = 0.5μs(typ.)
- Small Flat Package
- P_C = 1 to 2W (mounted on ceramic substrate)
- Complementary to 2SA1736

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3	A
Base Current	I_B	0.6	A
Collector Power Dissipation	P_C	500	mW
	P_C *	1000	
Jumction temperature	T_j	150	℃
Storage temperature Range	T_{stg}	-55 to +150	℃

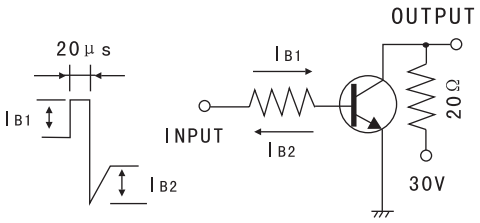
* Mounted on a ceramic substrate (250 mm^2 x 0.8 t)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector Cut-off Current	I_{CBO}	V_{CB} = 80V , I_E = 0			0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 6V , I_C = 0			0.1	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA , I_B = 0	50			V
DC Current Gain	h_{FE}	V_{CE} = 2V , I_C = 100mA	120		400	
		V_{CE} = 2V , I_C = 2A	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1.5A , I_B = 75mA			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 1.5A , I_B = 75mA			1.2	V
Transition Frequency	f_T	V_{CE} = 2V , I_C = 100mA		100		MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V , I_E = 0 , f = 1MHz		20		pF
Turn-On Time	t_{on}	See Test Circuit.		0.1		μs
Storage Time	t_{stg}			0.5		
Fall Time	t_f			0.1		

2SC4541

■ Test Circuit

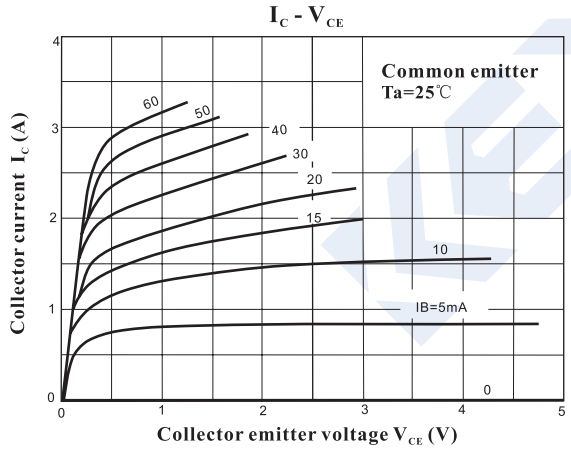


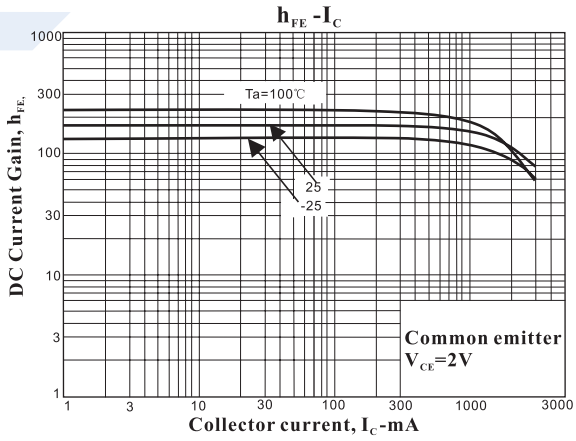
$I_{B1} = -I_{B2} = 75mA$, DUTY CYCLE ≤ 1%

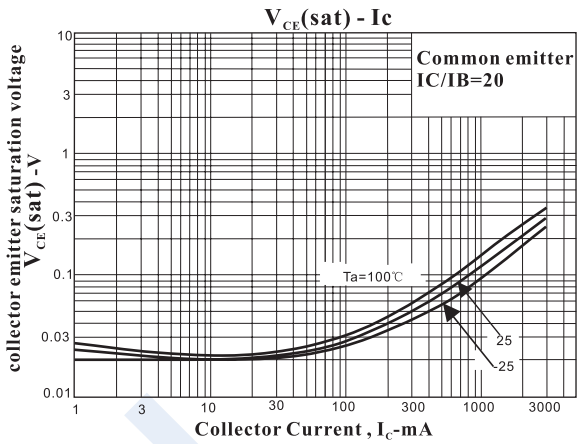
■ Marking

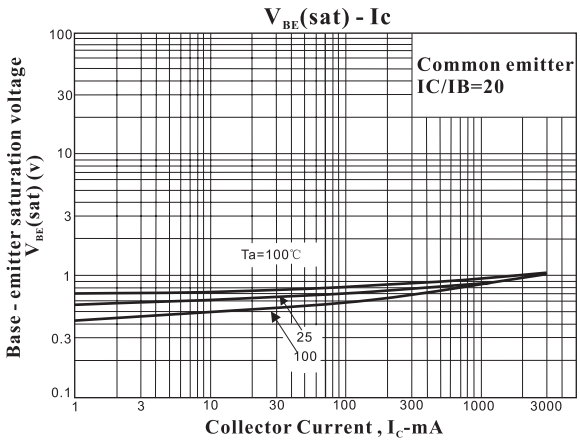
Marking	KD

■ Electrical Characteristics Curves

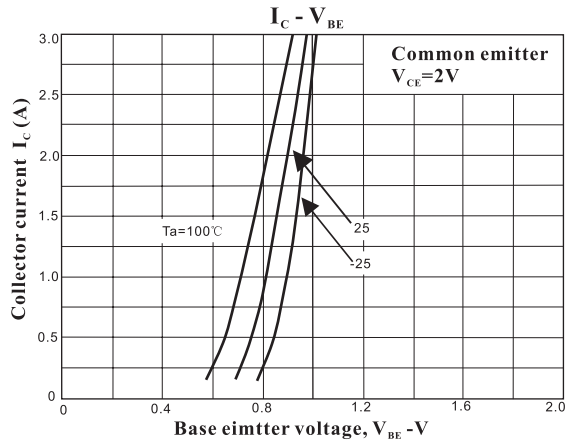


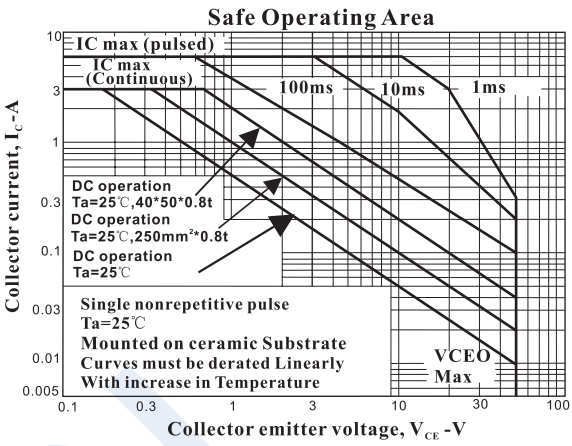


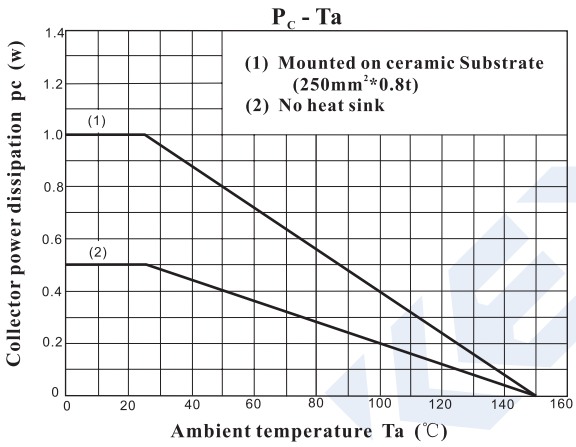




2SC4541


I_C - V_{BE}
Common emitter
V_{CE}=2V
Ta=100℃
25
25
Collector current I_C (A)
Base eimtter voltage, V_{BE} -V
3.0
2.5
2.0
1.5
1.0
0.5
0
0.4
0.8
1.2
1.6
2.0


Safe Operating Area
IC max (pulsed)
IC max
(Continuous)
100ms
10ms
1ms
DC operation
Ta=25℃,40*50*0.8t
DC operation
Ta=25℃,250mm²*0.8t
DC operation
Ta=25℃
Single nonrepetitive pulse
Ta=25℃
Mounted on ceramic Substrate
Curves must be derated Linearly
With increase in Temperature
VCEO
Max
Collector current, I_C-A
Collector emitter voltage, V_{CE} -V
10
3
1
0.3
0.1
0.03
0.01
0.005
0.1
0.3
1
3
10
30
100


P_C - Ta
(1) Mounted on ceramic Substrate
(250mm²*0.8t)
(2) No heat sink
(1)
(2)
Collector power dissipation pc (w)
Ambient temperature Ta (℃)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
0
20
40
60
80
100
120
140
160