

# Midium Power Transistors (80V / 2.5A)

# **2SCR544P**

#### Structure

NPN Silicon epitaxial planar transistor

#### Features

- 1) Low saturation voltage, typically  $V_{CE (sat)}$  = 0.3V (Max.) (I<sub>C</sub> / I<sub>B</sub>= 1A / 50mA)
- 2) High speed switching

#### Applications

Driver

#### Packaging specifications

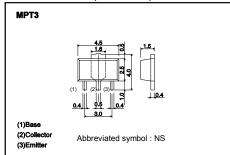
Туре	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SCR544P		0

# ● Absolute maximum ratings (Ta = 25°C)

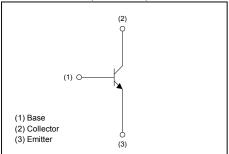
Parameter		Symbol	Limits	Unit
Collector-base voltage		$V_{CBO}$	80	V
Collector-emitter voltage		$V_{CEO}$	80	V
Emitter-base voltage		$V_{EBO}$	6	V
Collector current	DC	Ic	2.5	Α
	Pulsed	I <sub>CP</sub> *1	5	Α
Power dissipation		P <sub>D</sub> *2	0.5	W
		P <sub>D</sub> *3	2	W
Junction temperature		$T_j$	150	°C
Range of storage temperature		$T_{stg}$	-55 to 150	°C

<sup>\*1</sup> Pw=10ms, Single Pulse

#### ● Dimensions (Unit : mm)



#### • Inner circuit (Unit : mm)



<sup>\*2</sup> Each terminal mounted on a recommended land.

<sup>\*3</sup> Mounted on a ceramic board. (40x40x0.7mm³)

2SCR544P Data Sheet

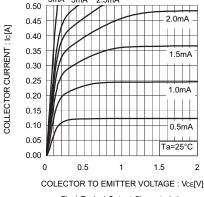
# ●Electrical characteristic (Ta = 25°C)

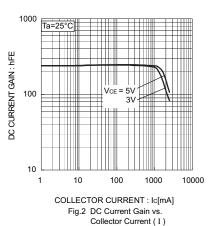
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Collector-emitter breakdown voltage	BV <sub>CBO</sub>	80	-	-	V	I <sub>C</sub> = 1mA	
Collector-base breakdown voltage	$BV_CEO$	80	-	-	V	I <sub>C</sub> = 100μA	
Emitter-base breakdown voltage	$BV_{EBO}$	6	-	-	V	I <sub>E</sub> = 100μA	
Collector cut-off current	I <sub>CBO</sub>	-	-	1	μA	V <sub>CB</sub> = 80V	
Emitter cut-off current	I <sub>EBO</sub>	-	-	1	μA	V <sub>EB</sub> = 4V	
Collector-emitter staturation voltage	$V_{CE(sat)}$	-	100	300	mV	I <sub>C</sub> = 1mA, I <sub>B</sub> = 50mA	
DC current gain	h <sub>FE</sub>	120	-	390	-	$V_{CE}$ = 3V, $I_{C}$ = 100mA	
Transition frequency	f⊤	-	280	-	MHz	V <sub>CE</sub> = 10V I <sub>E</sub> =-500mA, f=100MHz	
Collector output capacitance	C <sub>ob</sub>	-	16	-	pF	V <sub>CB</sub> = 10V, I <sub>E</sub> =0A f=1MH z	
Turn-on time	t <sub>on</sub> * <sub>1</sub>	-	50	-	ns	L = 4.2A L = 420m A	
Storage time	t <sub>stg</sub> * <sub>1</sub>	-	700	-	ns	$I_C$ = 1.3A, $I_{B1}$ = 130mA, $I_{B2}$ =-130mA, $V_{CC} \simeq 10V$	
Fall time	t <sub>f</sub> *1	-	40	-	ns	182 1331111 1, VCC _10V	

<sup>\*1</sup> See switching time test circuit

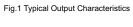
2SCR544P Data Sheet

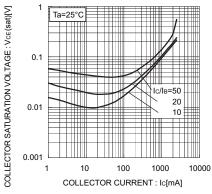
#### •Electrical characteristic curves





1000 VCE = 3V VCE = 3





1 | Ic/Is=20 | Ta=125°C | 75°C | 25°C | -40°C | -40°C | | -40°C |

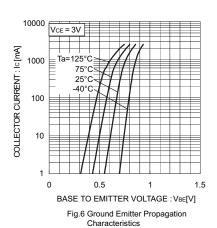
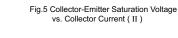
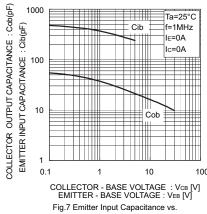


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current ( I )





1000 Ta=25°C Vce=10V V

OUT Ta=25°C (Mounted on a ceramic board)

0.01

0.01

0.01

0.01

0.01

100ms

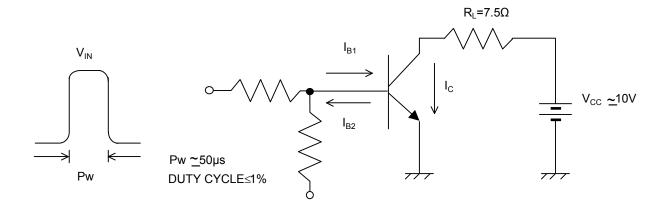
Fig. 7 Emitter Input Capacitance vs. Emitter-Base Voltage Collector Output Capacitance vs. Collector-Base Voltage

Fig.8 Gain Bandwidth Product vs. Emitter Current

Fig.9 Safe Operating Area

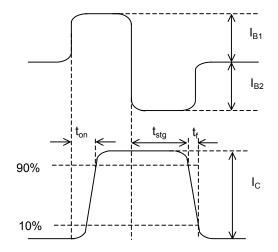
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# •Switching time test circuit



BASE CURENT WAVEFORM

COLLECTOR CURRENT WAVEFORM



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