

Parameter	Value
V_{CEO}	80V
I_C	1.5A

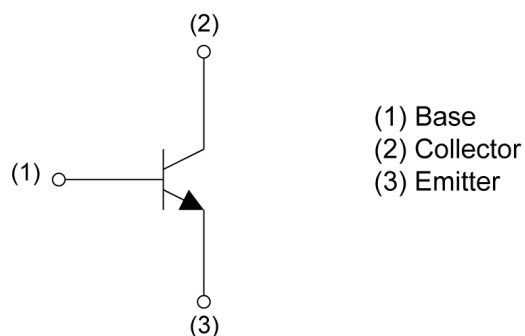
●Outline



●Features

- 1) Low saturation voltage, typically
 $V_{CE(sat)} = 300\text{mV (Max.)}$
 $(I_C/I_B = 500\text{mA}/25\text{mA})$
- 2) High speed switching

●Inner circuit



●Application

LOW FREQUENCY AMPLIFIER, HIGH SPEED SWITCHING

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SCR554P5	SOT-89 (MPT3)	4540	T100	180	12	1000	NH

● Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	80	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_{C}	1.5	A
	I_{CP}^{*1}	3.0	A
Power dissipation	P_{D}^{*2}	0.5	W
	P_{D}^{*3}	2.0	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

● Electrical characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	$I_{\text{C}} = 100\mu\text{A}$	80	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_{\text{C}} = 1\text{mA}$	80	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_{\text{E}} = 100\mu\text{A}$	6	-	-	V
Collector cut-off current	I_{CBO}	$V_{\text{CB}} = 80\text{V}$	-	-	1.0	μA
Emitter cut-off current	I_{EBO}	$V_{\text{EB}} = 4\text{V}$	-	-	1.0	μA
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 500\text{mA}$, $I_{\text{B}} = 25\text{mA}$	-	100	300	mV
DC current gain	h_{FE}	$V_{\text{CE}} = 3\text{V}$, $I_{\text{C}} = 100\text{mA}$	120	-	390	-
Transition frequency	f_{T}	$V_{\text{CE}} = 10\text{V}$, $I_{\text{E}} = -200\text{mA}$, $f = 100\text{MHz}$	-	300	-	MHz
Output capacitance	C_{ob}	$V_{\text{CB}} = 10\text{V}$, $I_{\text{E}} = 0\text{A}$, $f = 1\text{MHz}$	-	10	-	pF
Turn-On time	t_{on}	$I_{\text{C}} = 700\text{mA}$, $I_{\text{B1}} = 70\text{mA}$, $I_{\text{B2}} = -70\text{mA}$, $V_{\text{CC}} \approx 10\text{V}$, $R_{\text{L}} = 15\Omega$ See test circuit	-	50	-	ns
Storage time	t_{stg}		-	600	-	ns
Fall time	t_{f}		-	60	-	ns

*1 $P_{\text{W}}=10\text{ms}$, Single Pulse

*2 Each terminal mounted on a reference land.

*3 Mounted on a ceramic board.(40×40×0.7mm)

●Electrical characteristic curves($T_a = 25^\circ\text{C}$)

Fig.1 Ground Emitter Propagation Characteristics

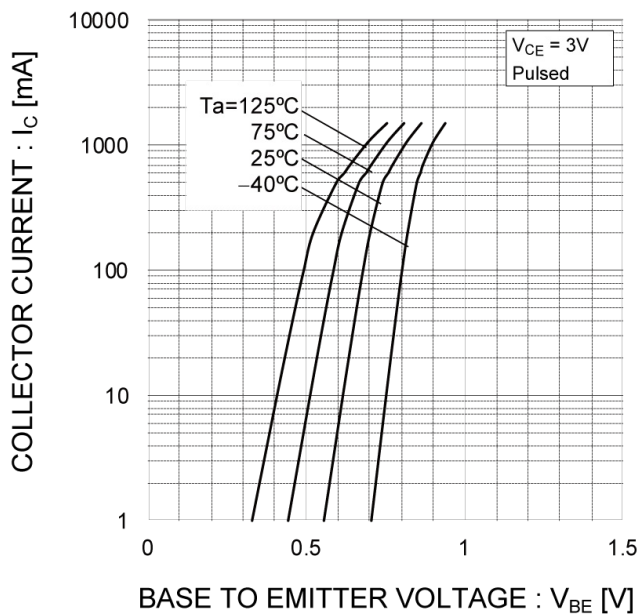


Fig.2 Typical Output Characteristics

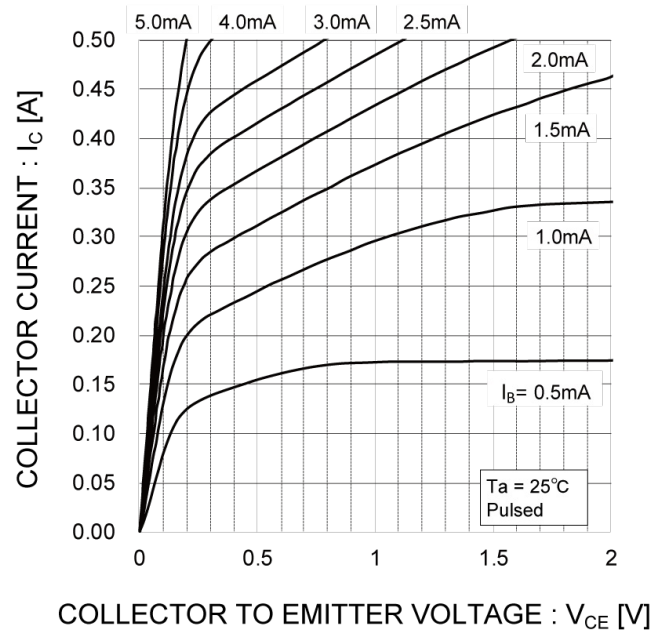


Fig.3 DC Current Gain vs. Collector Current (I)

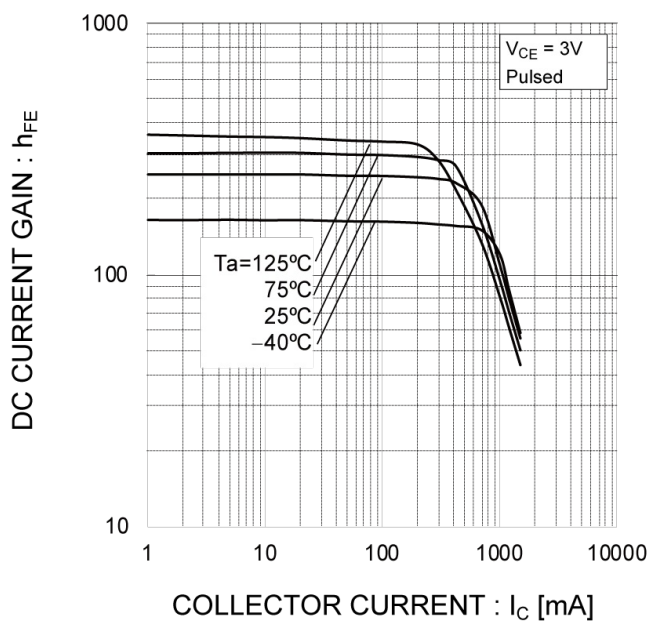
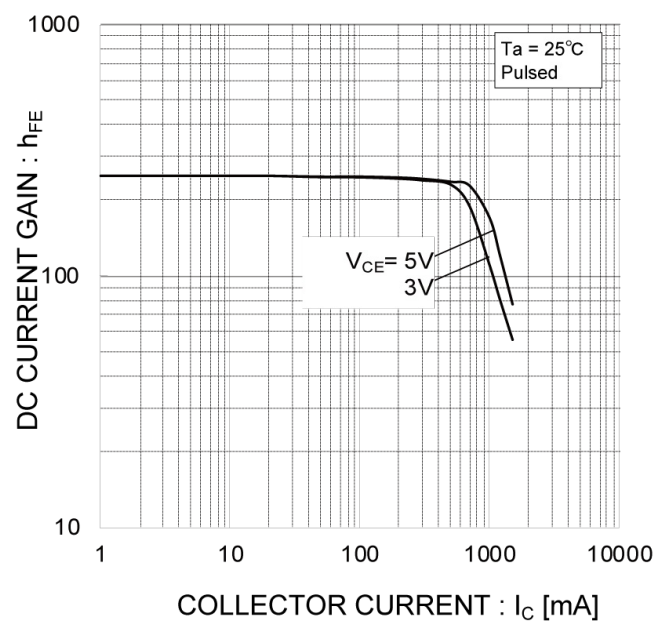


Fig.4 DC Current Gain vs. Collector Current (II)



●Electrical characteristic curves($T_a = 25^\circ\text{C}$)

Fig.5 Collector-Emitter Saturation
Voltage vs. Collector Current (I)

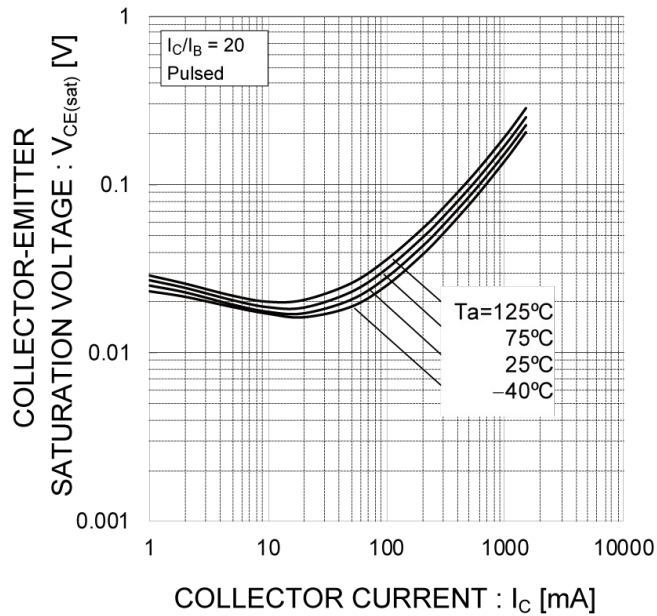


Fig.6 Collector-Emitter Saturation
Voltage vs. Collector Current (II)

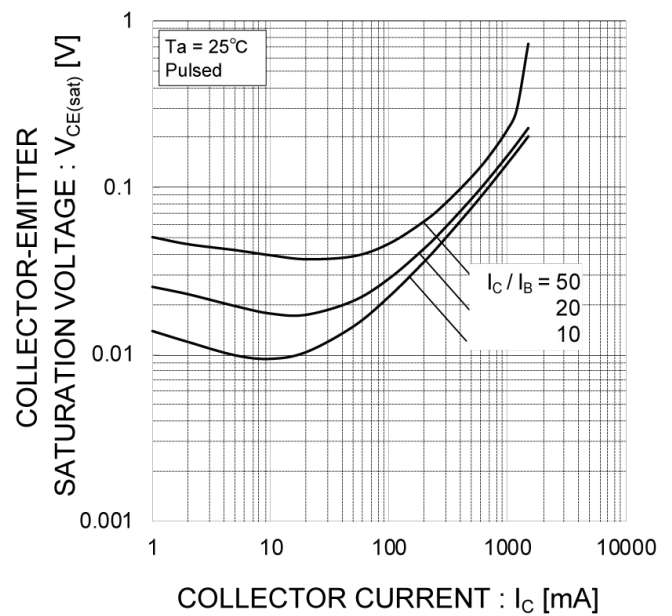


Fig.7 Base-Emitter Saturation Voltage
vs. Collector Current

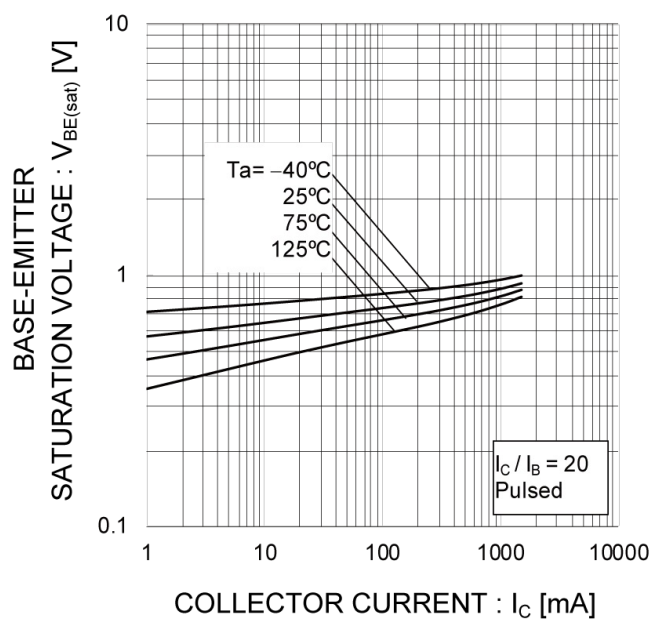
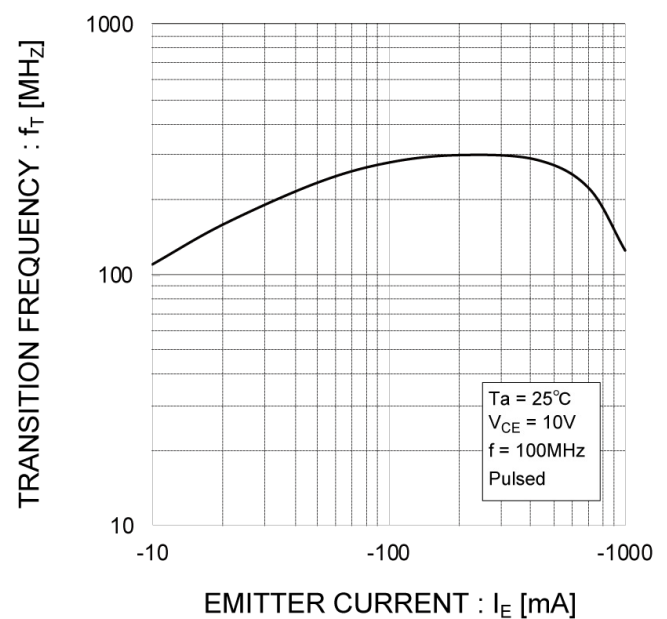


Fig.8 Gain Bandwidth Product vs.
Emitter Current



●Electrical characteristic curves($T_a = 25^\circ\text{C}$)

Fig.9 Emitter Input Capacitance vs.
Emitter-Base Voltage
Collector Output Capacitance vs.
Collector-Base Voltage

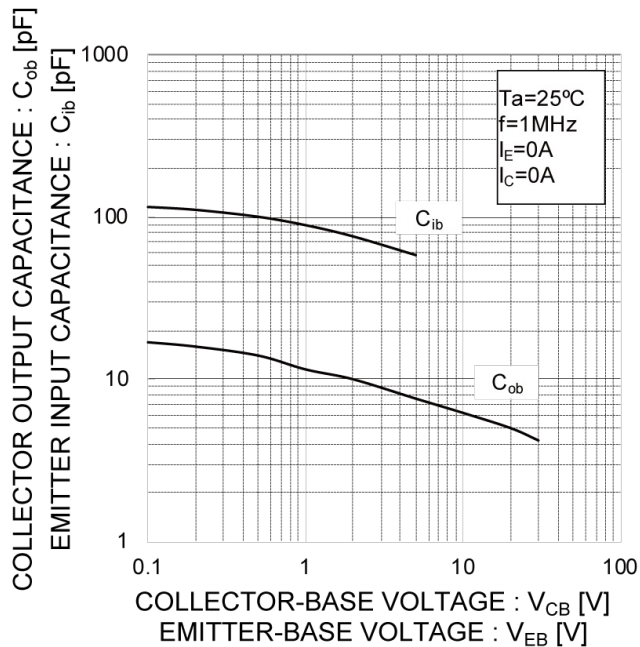
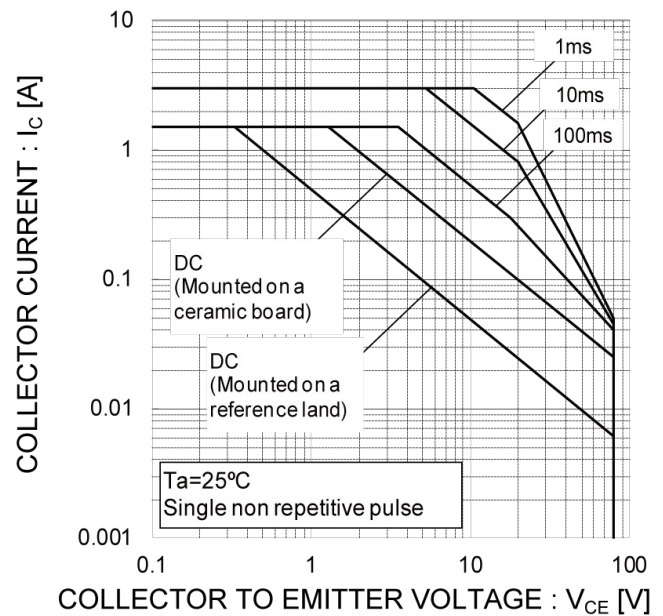


Fig.10 Safe Operating Area



SWITCHING TIME TEST CIRCUIT



●Dimensions

MPT3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.40	1.50	0.055	0.059
b	0.30	0.50	0.012	0.020
b1	1.50	1.70	0.059	0.067
b2	0.40	0.60	0.016	0.024
c	0.35	0.50	0.014	0.020
D	4.40	4.70	0.173	0.185
E	2.40	2.70	0.094	0.106
e	3.00		0.118	
e1	1.50		0.059	
HE	3.70	4.30	0.146	0.169
LE	0.80	1.20	0.031	0.047
Lp	1.01	1.41	0.040	0.056
x	—	0.15	—	0.006
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b3	—	0.65	—	0.026
b4	—	1.70	—	0.067
b5	—	0.75	—	0.030
l1	—	1.71	—	0.067
l2	—	0.58	—	0.023
l3	—	3.72	—	0.146
β	45°		45°	

Dimension in mm/inches