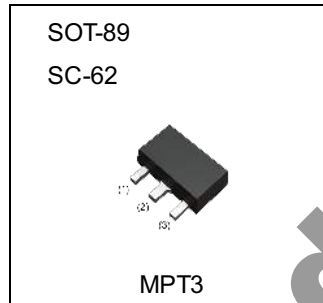


Parameter	Value
$V_{CEO}$	80V
$I_C$	0.7A

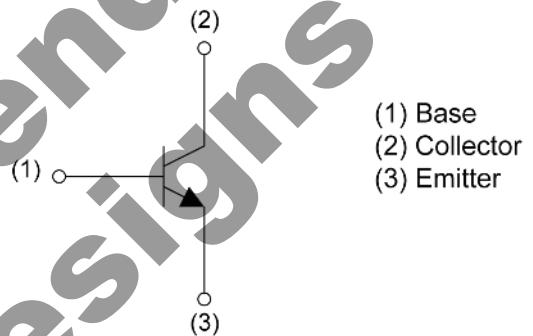
●Outline



●Features

- 1) Low saturation voltage, typically  
 $V_{CE(sat)}=300\text{mV}$  (Max.)  
 $(I_C/I_B=300\text{mA}/15\text{mA})$
- 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
2SCR514P	SOT-89 (MPT3)	4540	T100	180	12	1000	ND

● **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	$I_C$	0.7	A
	$I_{CP}^{*1}$	1.4	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	$BV_{CBO}$	$I_C = 100\mu\text{A}$	80	-	-	V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1\text{mA}$	80	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu\text{A}$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 80\text{V}$	-	-	1.0	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4\text{V}$	-	-	1.0	$\mu\text{A}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 300\text{mA}, I_B = 15\text{mA}$	-	100	300	mV
DC current gain	$h_{FE}$	$V_{CE} = 3\text{V}, I_C = 100\text{mA}$	120	-	390	-
Transition frequency	$f_T$	$V_{CE} = 10\text{V}, I_E = -200\text{mA}, f = 100\text{MHz}$	-	320	-	MHz
Output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$	-	6	-	pF
Turn-On time	$t_{on}$	$I_C = 350\text{mA}, I_{B1} = 35\text{mA}$	-	50	-	ns
Storage time	$t_{stg}$	$I_{B2} = -35\text{mA}, V_{CC} \approx 10\text{V}$	-	650	-	ns
Fall time	$t_f$	$R_L = 27\Omega$ See test circuit	-	100	-	ns

\*1  $P_w=10\text{ms}$ , 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

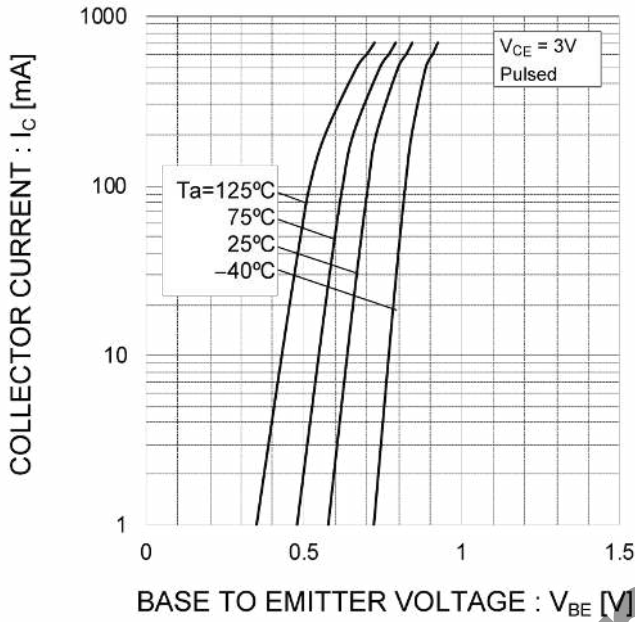


Fig.2 Typical Output Characteristics

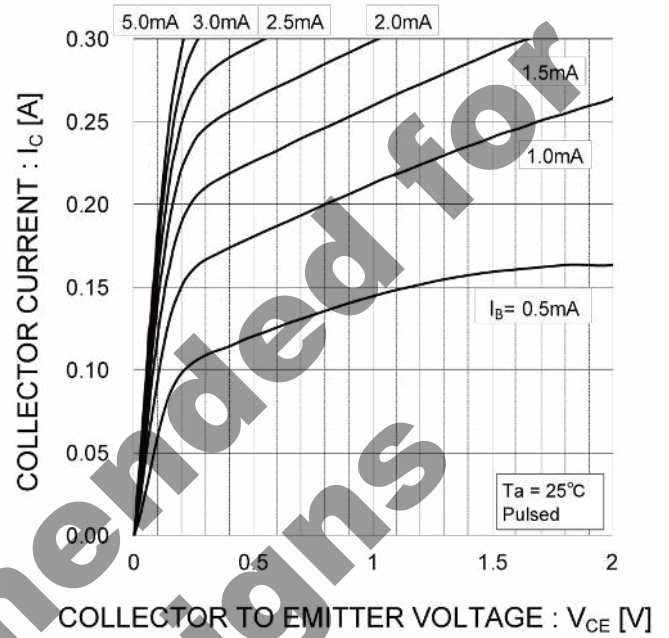


Fig.3 DC Current Gain vs. Collector Current (I)

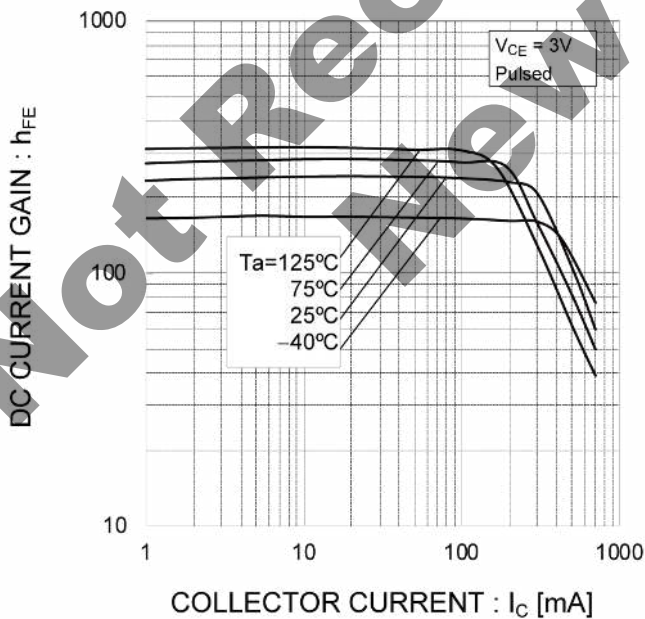
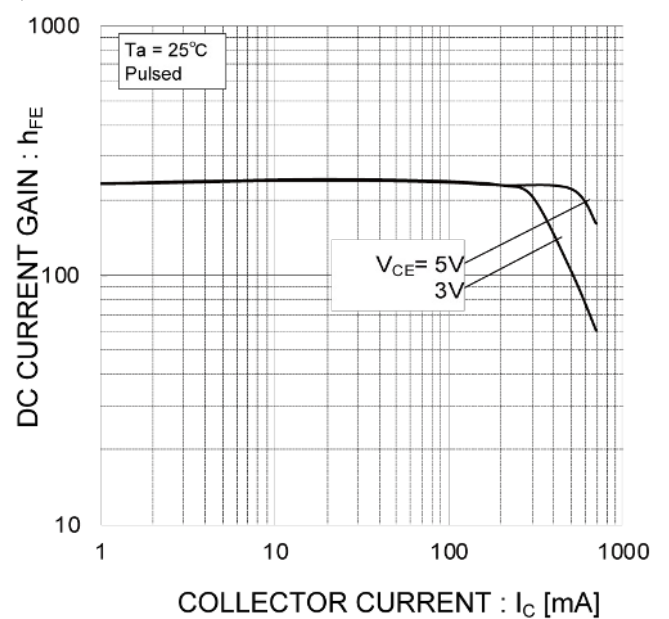


Fig.4 DC Current Gain vs. Collector Current (II)



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

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

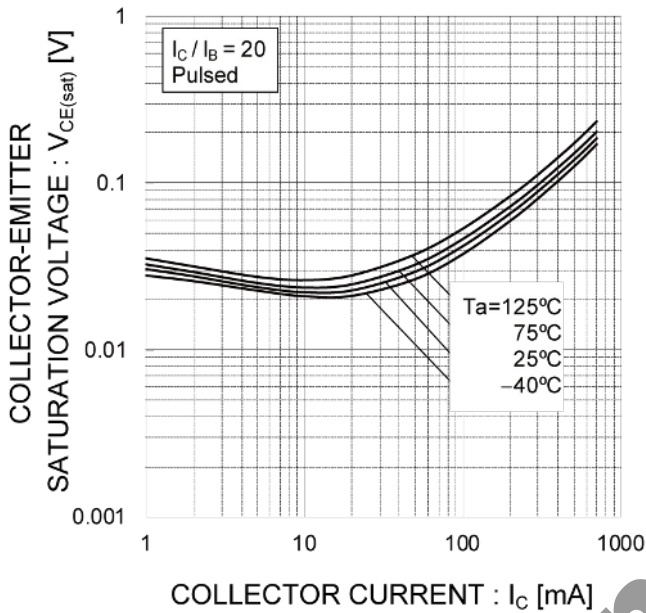


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

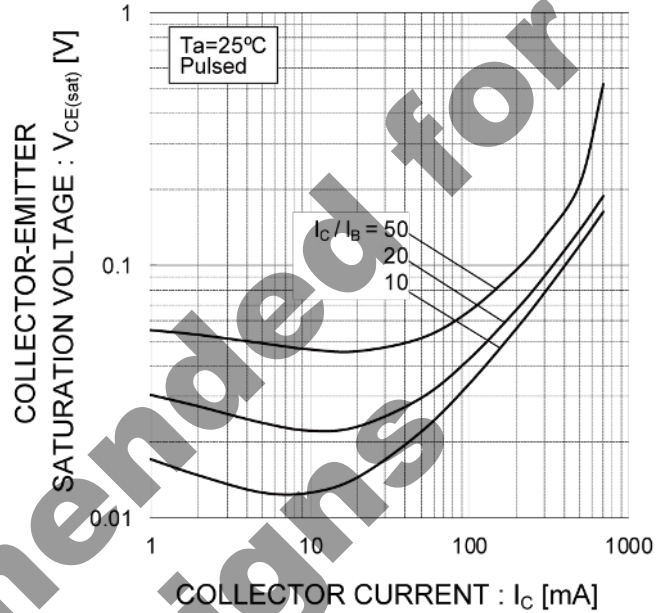


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

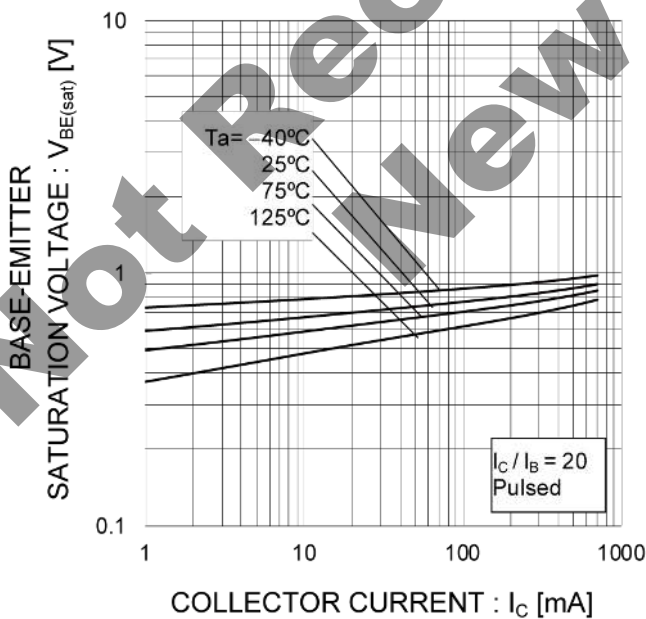
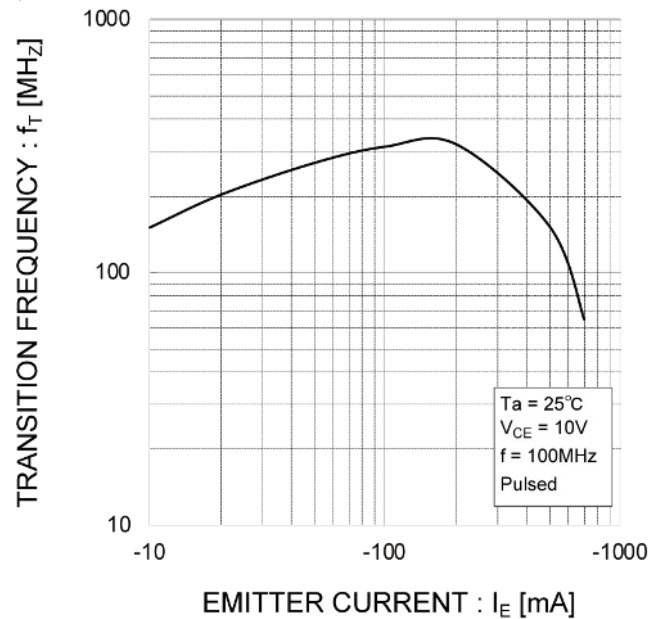


Fig.8 Gain Bandwidth Product vs. Emitter Current



● 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

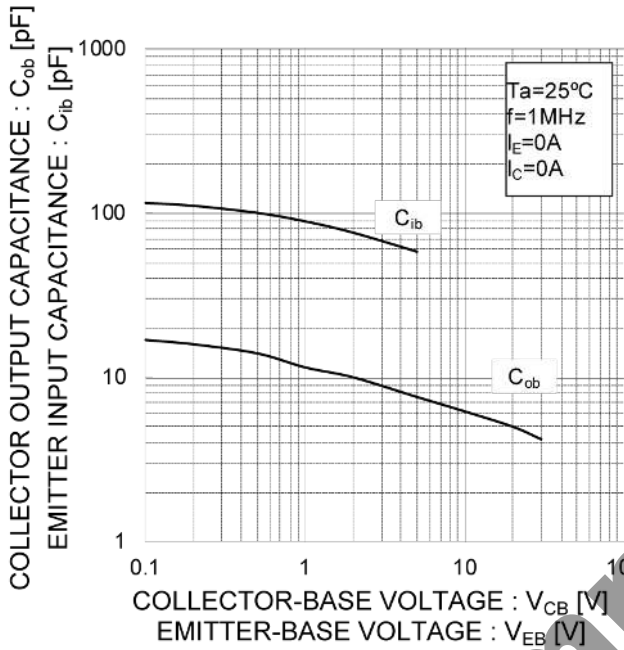
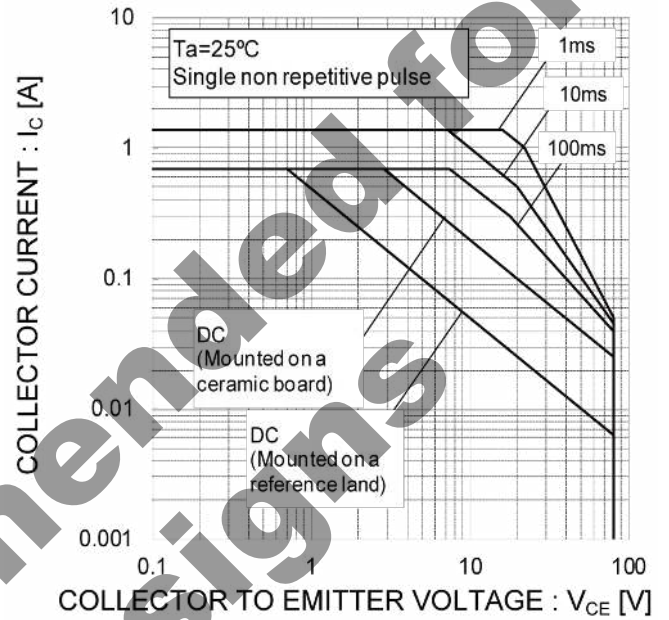
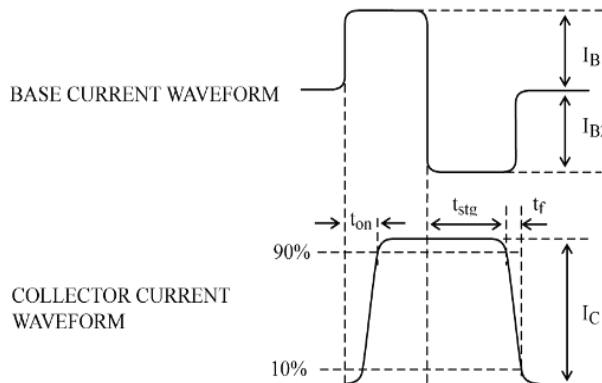
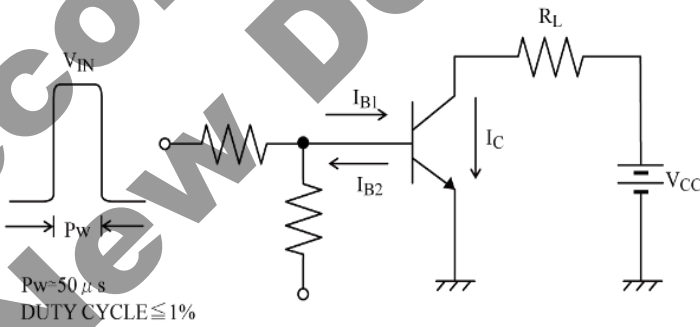


Fig.10 Safe Operating Area

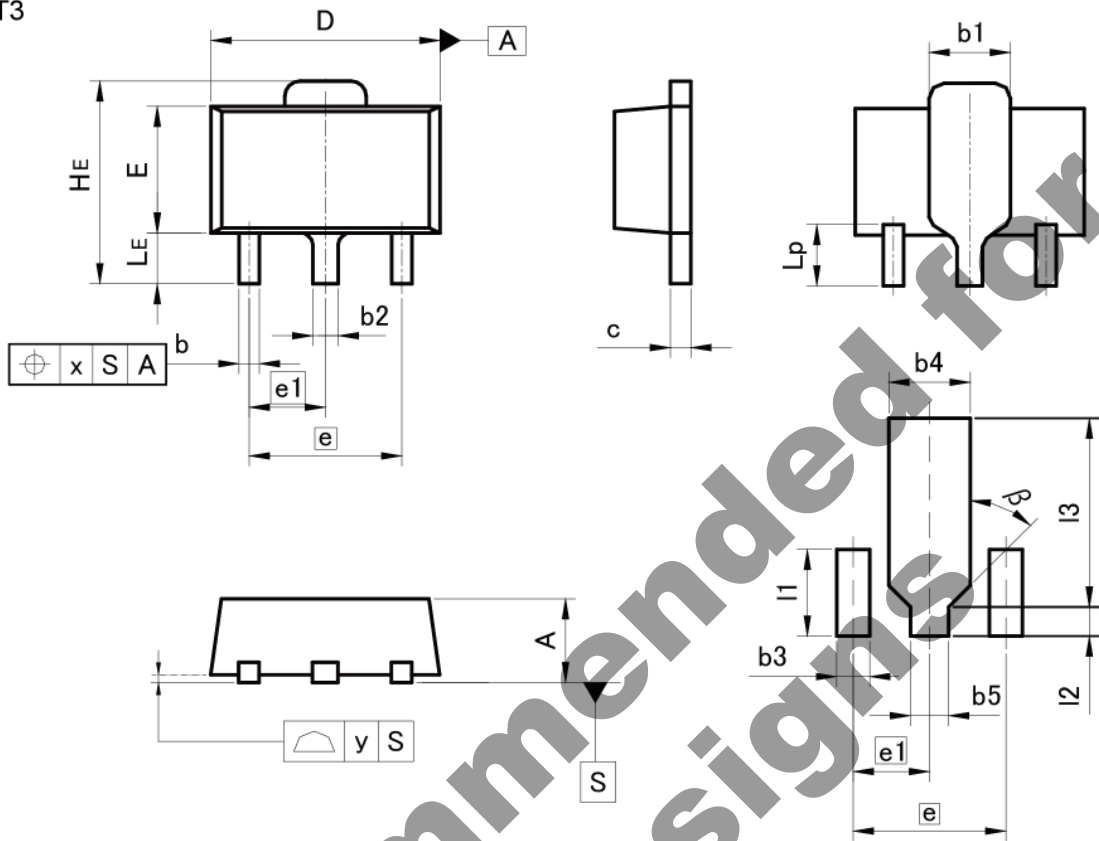


SWITCHING TIME TEST CIRCUIT



●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



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