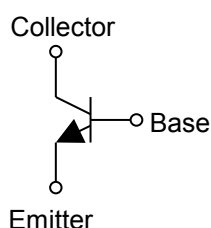


Parameter	Value
V_{CEO}	30V
I_C	2.0A

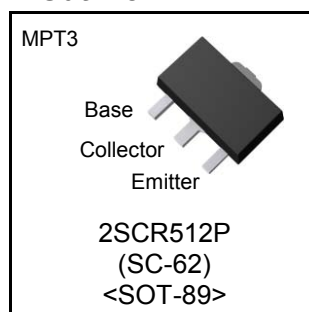
●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary PNP Types : 2SAR512P
- 3) Low $V_{CE(sat)}$
 $V_{CE(sat)}=0.40V(\text{Max.})$
 $(I_C/I_B=700mA/35mA)$
- 4) Lead Free/RoHS Compliant.

●Inner circuit



●Outline



●Applications

Motor driver , LED driver
Power supply

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SCR512P	MPT3	4540	T100	180	12	1,000	NB

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

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	DC	I_C	2.0
	Pulsed	I_{CP}^{*1}	4.0
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	$^\circ\text{C}$

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

*2 Each terminal mounted on a reference land

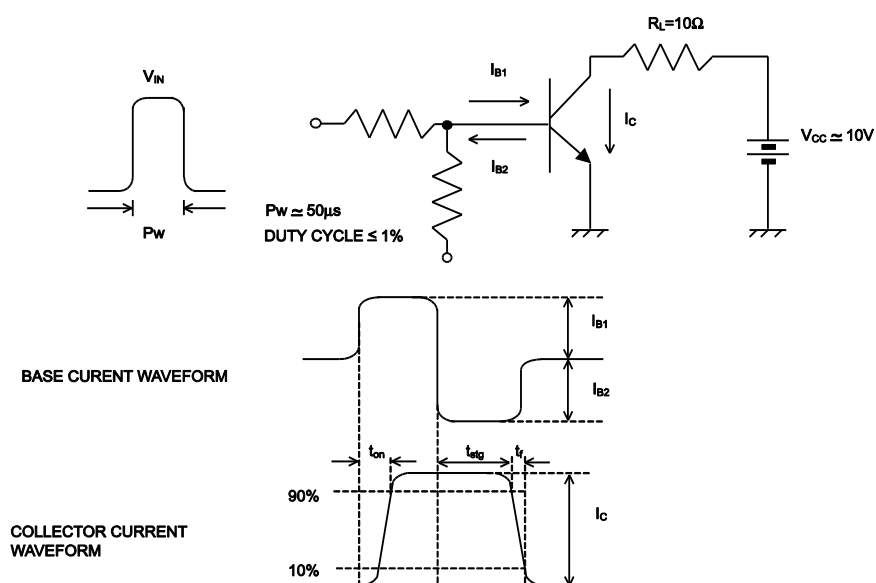
*3 Mounted on a ceramic board (40×40×0.7mm)

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$	30	-	-	V
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu\text{A}$	30	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu\text{A}$	6	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 30\text{V}$	-	-	1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\text{V}$	-	-	1	μA
Collector-emitter saturation voltage	$V_{CE(sat)}^{*1}$	$I_C = 700\text{mA}$, $I_B = 35\text{mA}$	-	0.2	0.4	V
DC current gain	h_{FE}	$V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$	200	-	500	-
Transition frequency	f_T	$V_{CE} = 10\text{V}$, $I_E = -100\text{mA}$ $f = 100\text{MHz}$	-	320	-	MHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$	-	10	-	pF
Turn-on time	t_{on}^{*2}	$I_C = 1\text{A}$ $I_{B1} = 100\text{mA}$ $I_{B2} = -100\text{mA}$ $V_{CC} \approx 10\text{V}$	-	25	-	ns
Storage time	t_{stg}^{*2}		-	240	-	ns
Fall time	t_f^{*2}		-	20	-	ns

*1 Pulsed

*2 See switching time test circuit

●Switching time test circuit


●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

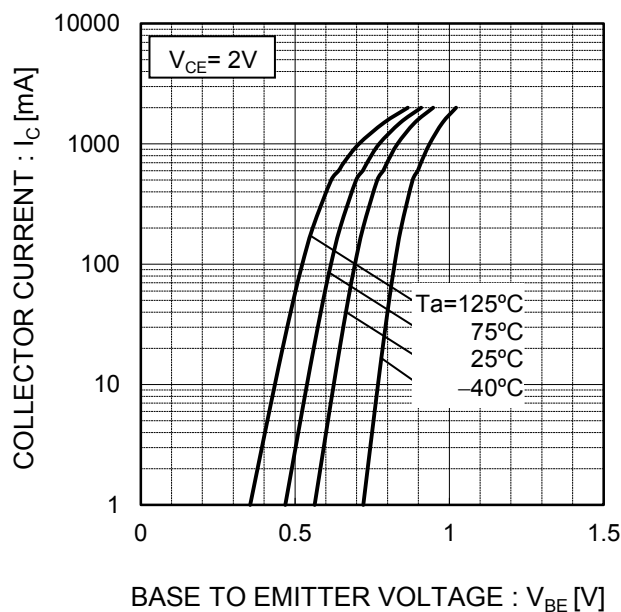


Fig.2 Typical Output Characteristics

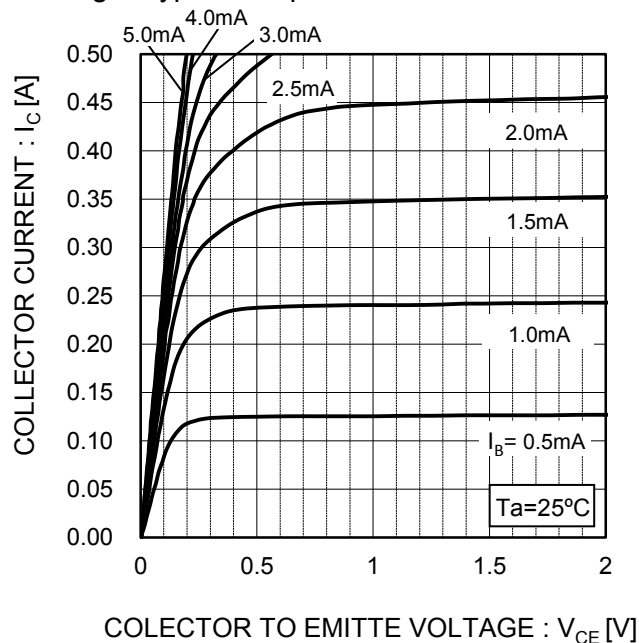


Fig.3 DC Current Gain vs. Collector Current(I)

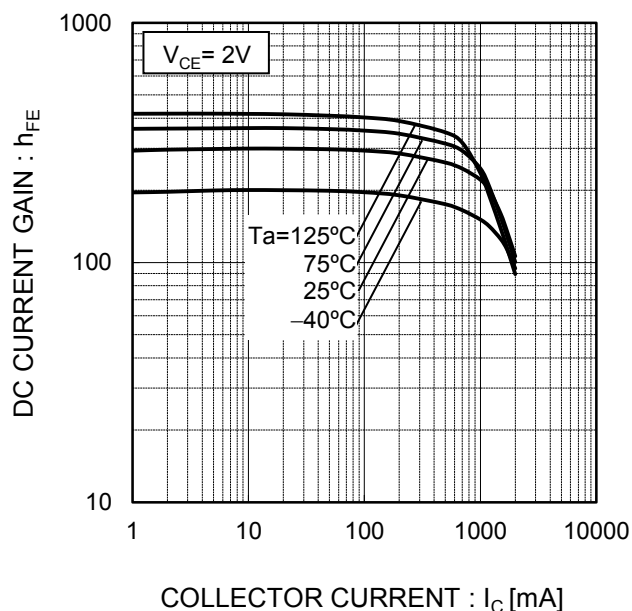
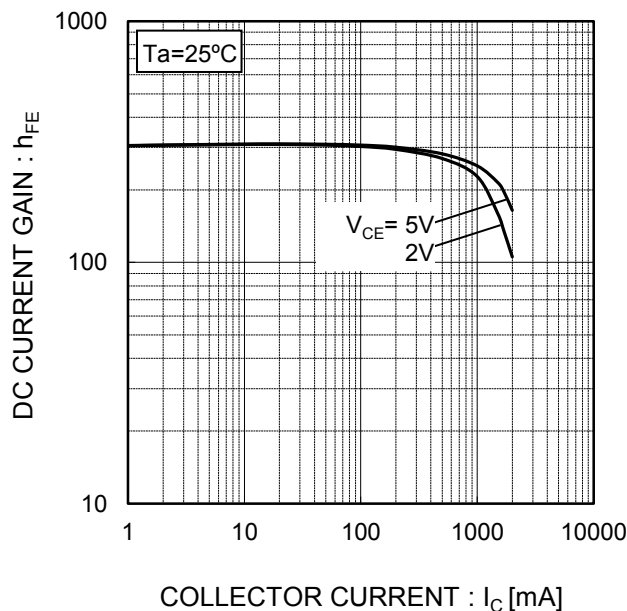


Fig.4 DC current gain vs. output current (II)



●Electrical characteristic curves(Ta = 25°C)

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

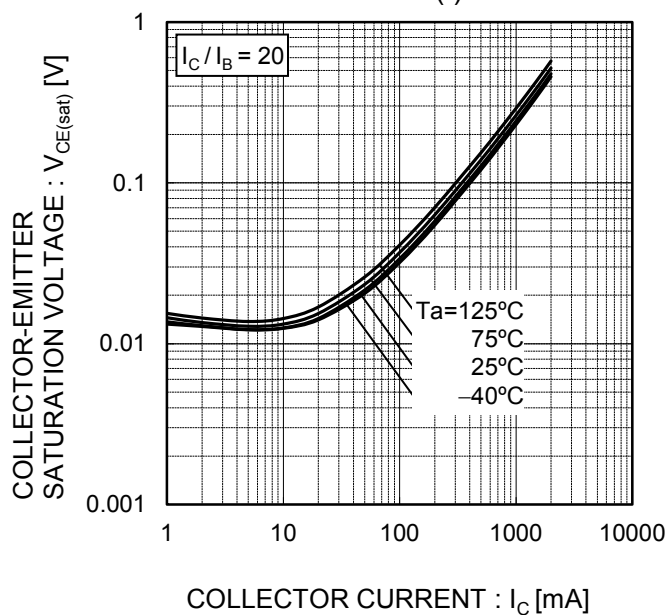


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

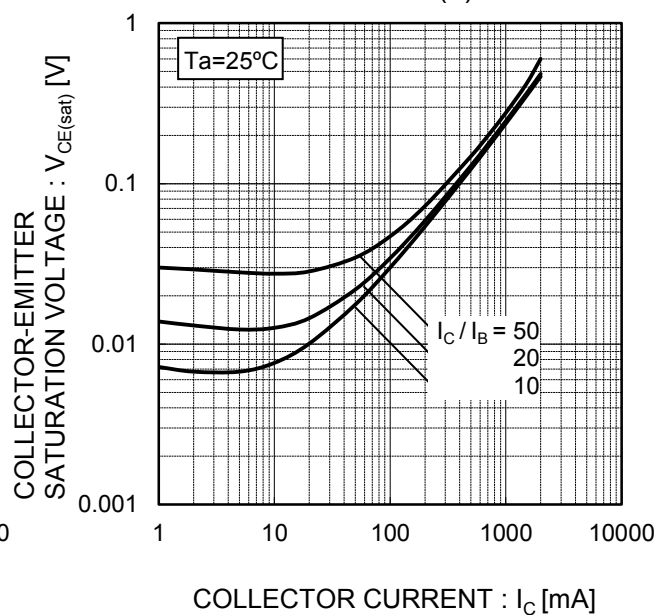


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

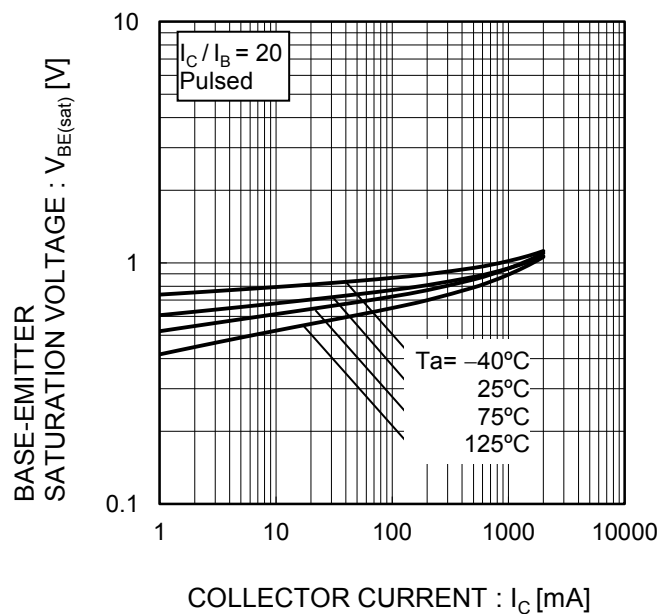
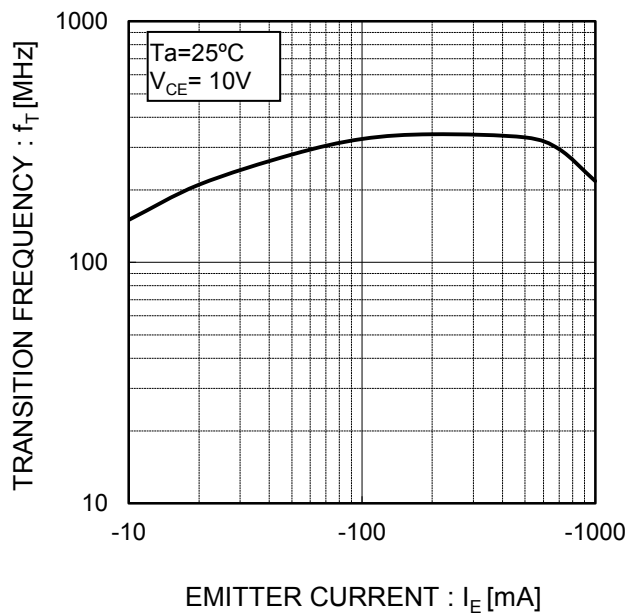


Fig.8 Gain Bandwidth Product vs. Emitter Current



●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

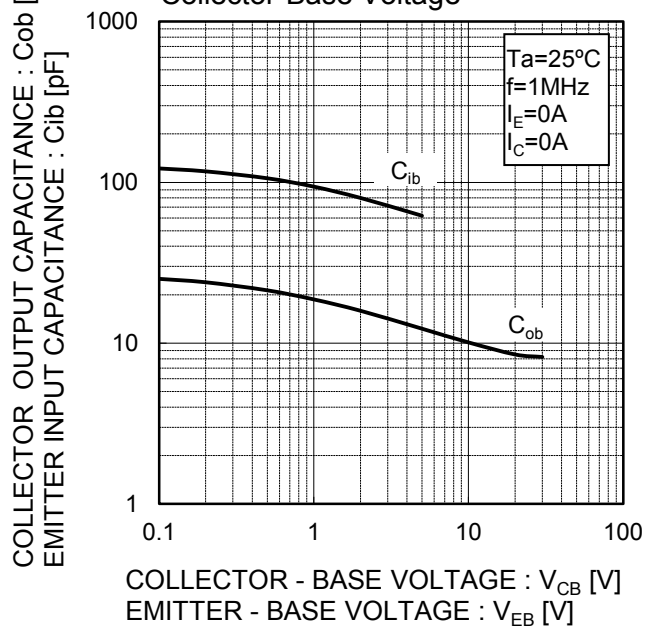
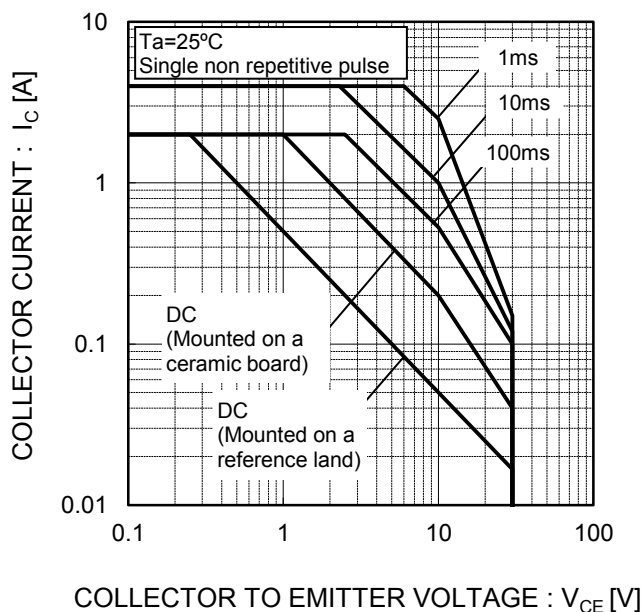
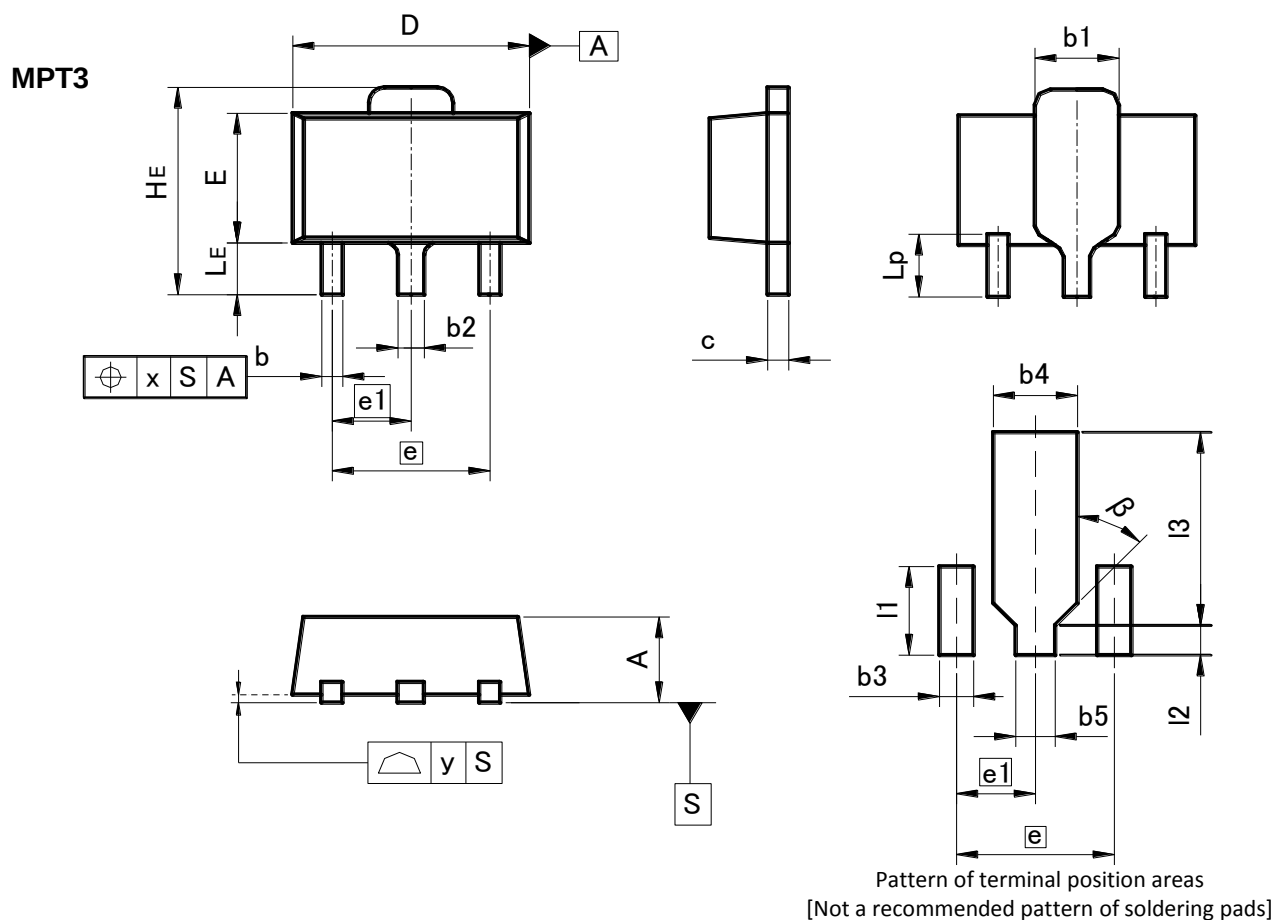


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)



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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Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

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moschip.ru_9