

Medium Power Transistors (-30V / -2A)

2SAR512P

● Structure

PNP Silicon epitaxial planar transistor

● Features

1) Low saturation voltage, typically

$$V_{CE(sat)} = -0.4V \text{ (Max.) } (I_C / I_B = -700mA / -35mA)$$

2) High speed switching

● Applications

Driver

● Packaging specifications

Type	Package	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
2SAR512P		○

● Absolute maximum ratings (Ta = 25°C)

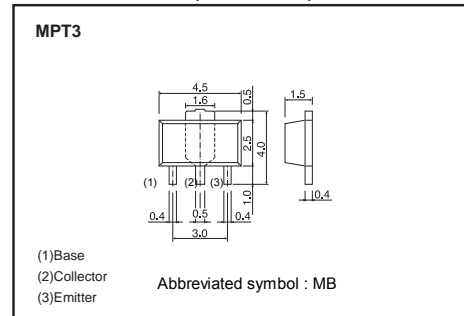
Parameter	Symbol	Limits	Unit	
Collector-base voltage	V_{CBO}	-30	V	
Collector-emitter voltage	V_{CEO}	-30	V	
Emitter-base voltage	V_{EBO}	-6	V	
Collector current	DC	I_C	-2	A
	Pulsed	I_{CP}^{*1}	-4	A
Power dissipation		P_D^{*2}	0.5	W
		P_D^{*3}	2	W
Junction temperature	T_j	150	°C	
Range of storage temperature	T_{stg}	-55 to 150	°C	

*1 Pw=10ms, Single Pulse

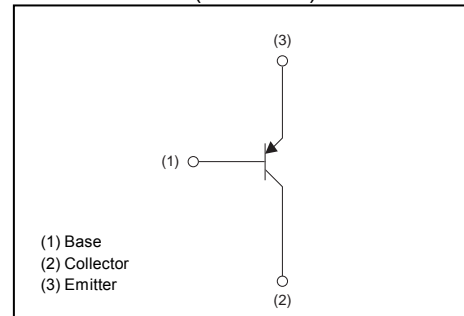
*2 Each terminal mounted on a recommended land.

*3 Mounted on a ceramic board. (40x40x0.7mm³)

● Dimensions (Unit : mm)



● Inner circuit (Unit : mm)



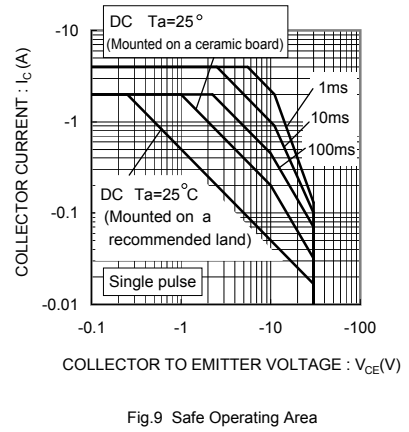
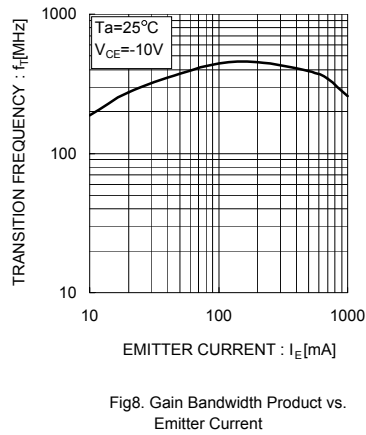
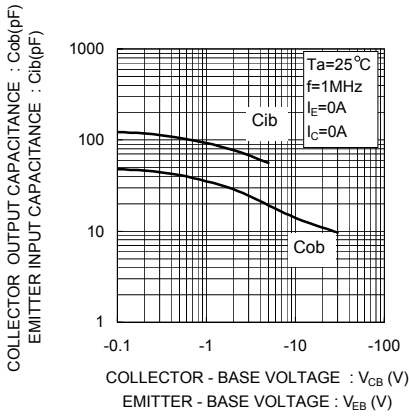
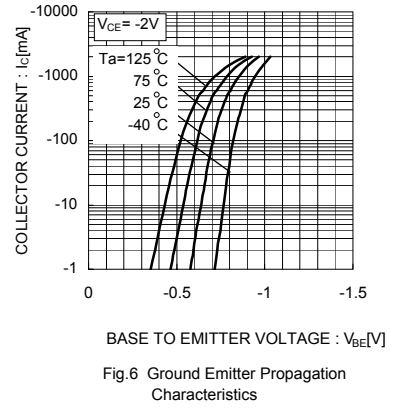
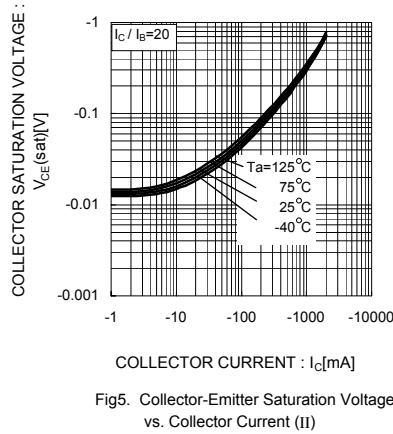
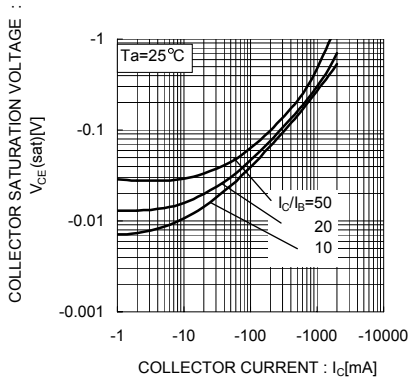
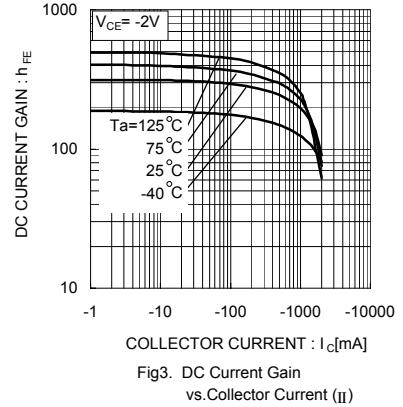
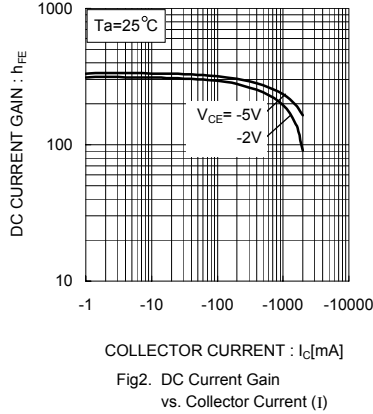
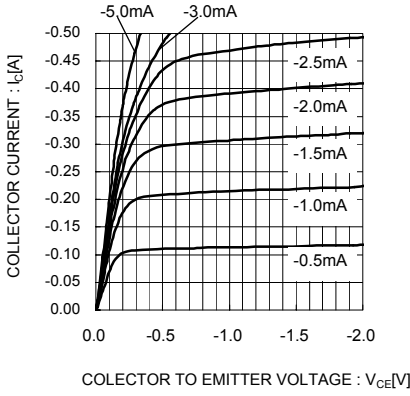
●Electrical characteristic (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CBO}	-30	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	BV_{CEO}	-30	-	-	V	$I_C = -100\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -100\mu\text{A}$
Collector cut-off current	I_{CBO}	-	-	-1	μA	$V_{CB} = -30\text{V}$
Emitter cut-off current	I_{EBO}	-	-	-1	μA	$V_{EB} = -4\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	-	-200	-400	mV	$I_C = -700\text{mA}$, $I_B = -35\text{mA}$
DC current gain	h_{FE}	200	-	500	-	$V_{CE} = -2\text{V}$, $I_C = -100\text{mA}$
Transition frequency	f_T^*	-	430	-	MHz	$V_{CE} = -10\text{V}$ $I_E = 100\text{mA}$, $f = 100\text{MHz}$
Collector output capacitance	C_{ob}	-	15	-	pF	$V_{CB} = -10\text{V}$, $I_E = 0\text{A}$ $f = 1\text{MHz}$
Turn-on time	t_{on}^*	-	30	-	ns	$I_C = -1\text{A}$, $I_{B1} = -100\text{mA}$, $I_{B2} = 100\text{mA}$, $V_{CC} \approx -10\text{V}$
Storage time	t_{stg}^*	-	170	-	ns	
Fall time	t_f^*	-	15	-	ns	

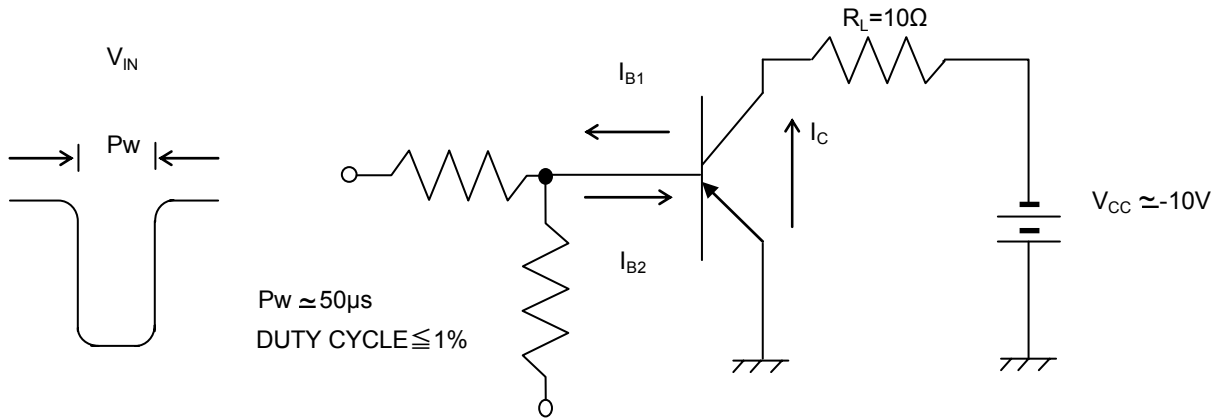
*1 Pulsed

*2 See switching time test circuit

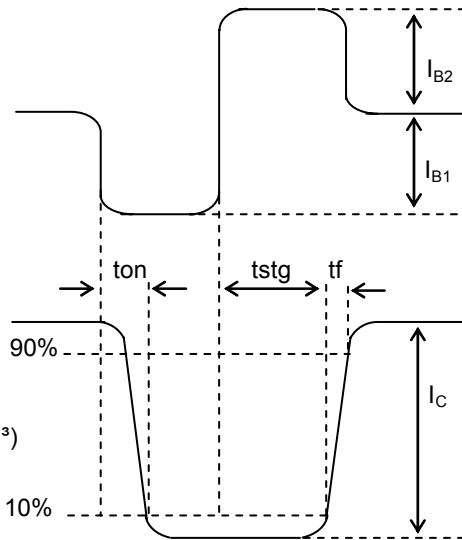
●Electrical characteristic curves



●Switching time test circuit



BASE CURRENT WAVEFORM



*1 $P_w = 10ms$, Single Pulse

COLLECTOR CURRENT WAVEFORM

*3 Mounted on a ceramic board. (40x40x0.7mm³)

Notes

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