

Midium Power Transistors (-80V / -2.5A)

2SAR544R

● Structure

PNP Silicon epitaxial planar transistor

● Features

- 1) Low saturation voltage, typically
 $V_{CE(sat)} = -0.4V$ (Max.) ($I_C / I_B = -1A / -50mA$)
- 2) High speed switching

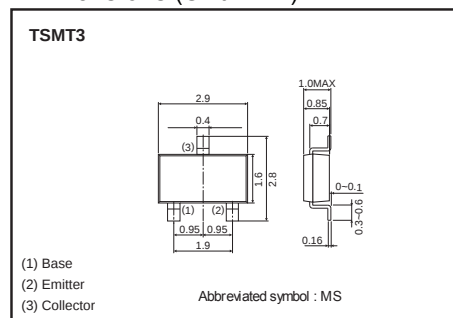
● Applications

Driver

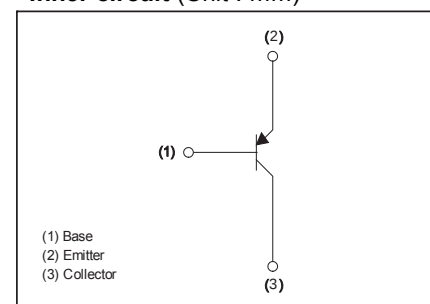
● Packaging specifications

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SAR544R		○

● Dimensions (Unit : mm)



● Inner circuit (Unit : mm)



● 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	I _C	-2.5	A
	Pulsed	I _{CP} *1	-5	A
Power dissipation		P _D *2	0.5	W
		P _D *3	1	W
Junction temperature		T _j	150	°C
Range of storage temperature		T _{stg}	-55 to 150	°C

*1 $P_W=10ms$, Single Pulse

*2 Each terminal mounted on a recommended land.

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

●Electrical characteristic (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	-80	-	-	V	$I_C = -1mA$
Collector-base breakdown voltage	BV_{CBO}	-80	-	-	V	$I_C = -100\mu A$
Emitter-base breakdown voltage	BV_{EBO}	-6	-	-	V	$I_E = -100\mu A$
Collector cut-off current	I_{CBO}	-	-	-1	μA	$V_{CB} = -80V$
Emitter cut-off current	I_{EBO}	-	-	-1	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-200	-400	mV	$I_C = -1A, I_B = -50mA$
DC current gain	h_{FE}	120	-	390	-	$V_{CE} = -3V, I_C = -100mA$
Transition frequency	f_T	-	280	-	MHz	$V_{CE} = -10V$ $I_E = 500mA, f = 100MHz$
Collector output capacitance	C_{ob}	-	32	-	pF	$V_{CB} = -10V, I_E = 0A$ $f = 1MHz$
Turn-on time	t_{on}^{*1}	-	50	-	ns	$I_C = -1.3A, I_{B1} = -130mA,$ $I_{B2} = 130mA, V_{CC} \approx -10V$
Storage time	t_{stg}^{*1}	-	400	-	ns	
Fall time	t_f^{*1}	-	40	-	ns	

*1 See switching time test circuit

Electrical characteristics curves

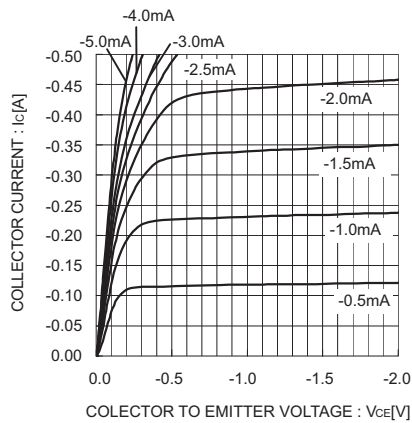


Fig.1 Typical Output Characteristics

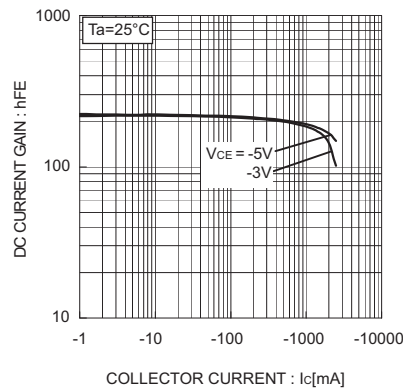
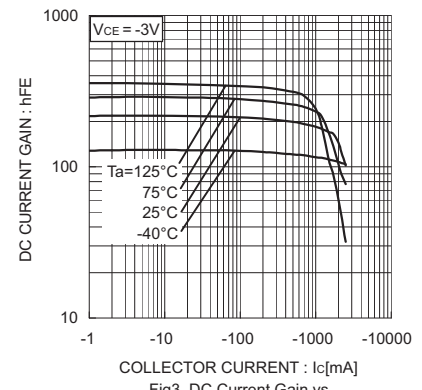
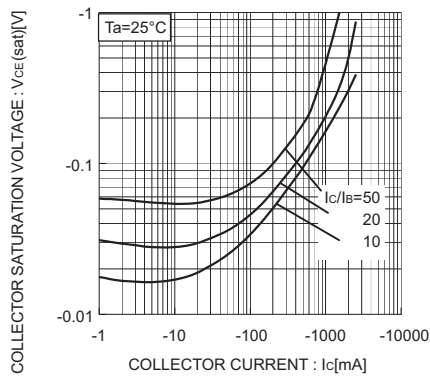
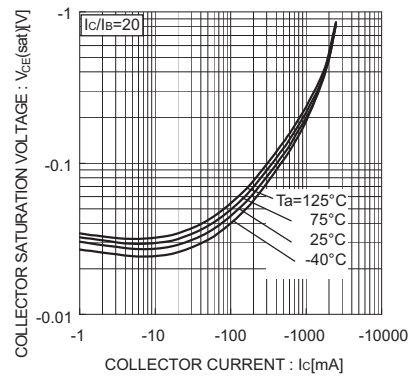
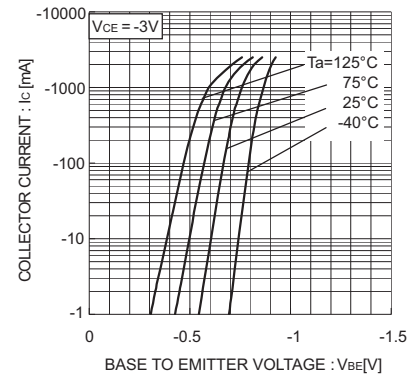
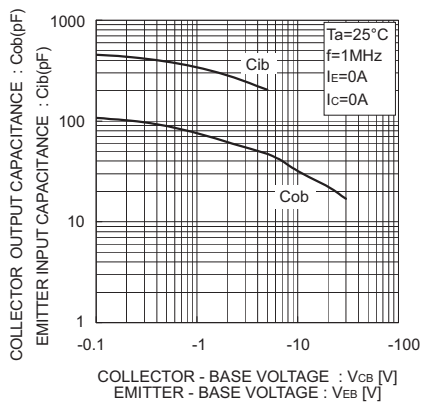
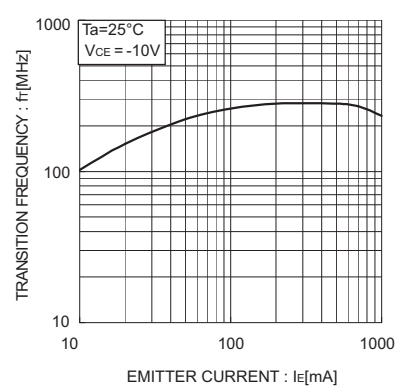
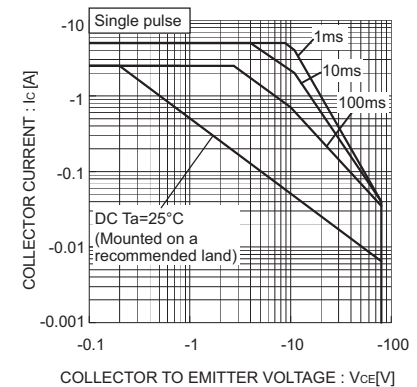
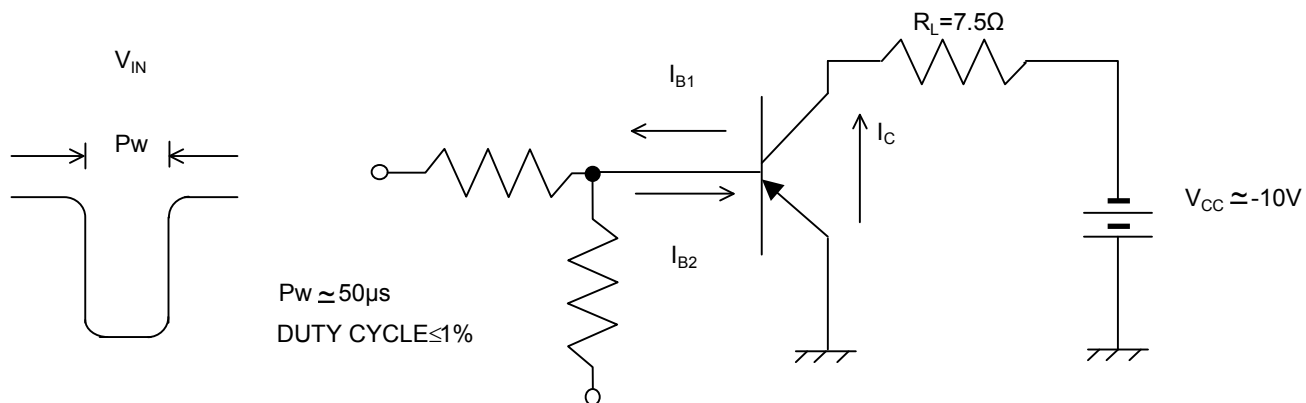
Fig.2 DC Current Gain vs.
Collector Current (I)Fig.3. DC Current Gain vs.
Collector Current (II)Fig.4 Collector-Emitter Saturation Voltage
vs. Collector Current (I)Fig.5 Collector-Emitter Saturation Voltage
vs. Collector Current (II)Fig.6 Ground Emitter Propagation
CharacteristicsFig.7 Emitter Input Capacitance vs.
Emitter-Base Voltage
Collector Output Capacitance vs.
Collector-Base VoltageFig.8 Gain Bandwidth Product vs.
Emitter Current

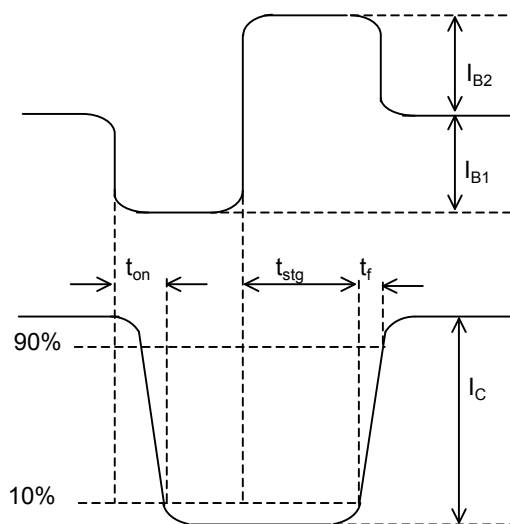
Fig.9 Safe Operating Area

●Switching time test circuit



BASE CURENT WAVEFORM

COLLECTOR CURRENT WAVEFORM



Notes

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