Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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2SAR543R

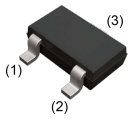
PNP -3.0A -50V Middle Power Transistor

Datasheet

Parameter	Value
V_{CEO}	-50V
I_C	-3A

●Outline

TSMT3



SOT-346T

SC-96

●Features

1)Suitable for Middle Power Driver

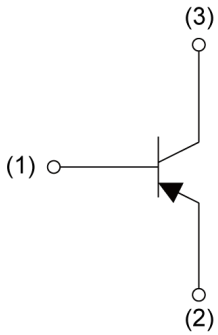
2)Complementary NPN Types:2SCR543R

3)Low saturation voltage

$V_{CE(sat)}$=-400mV(Max.)

(I_C/ I_B=-2A/-100mA)

●Inner circuit



(1) Base
(2) Emitter
(3) Collector

●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
2SAR543R	TSMT3	2928	TL	180	8	3000	MR

●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-3	A
	I_{CP}*1	-6	A
Power dissipation	P_D*2	0.5	W
	P_D*3	1.0	W
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = -100μA	-50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = -1mA	-50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = -100μA	-6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = -50V	-	-	-1.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = -4V	-	-	-1.0	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = -2A, I_B = -100mA	-	-200	-400	mV
DC current gain	h_{FE}	V_{CE} = -3V, I_C = -100mA	180	-	450	-
Transition frequency	f_T	V_{CE} = -10V, I_E = 300mA, f = 100MHz	-	300	-	MHz
Output capacitance	C_{ob}	V_{CB} = -10V, I_E = 0mA, f = 1MHz	-	35	-	pF
Turn-On time	t_{on}	I_C = -2A, I_{B1} = -200mA, I_{B2} = 200mA, V_{CC} ≃ -10V, R_L = 4.7Ω See test circuit	-	45	-	ns
Storage time	t_{stg}		-	250	-	ns
Fall time	t_f		-	40	-	ns

*1 Pw=10ms, Single Pulse

*2 Mounted on a reference land

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

●Electrical characteristic curves(T_a = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

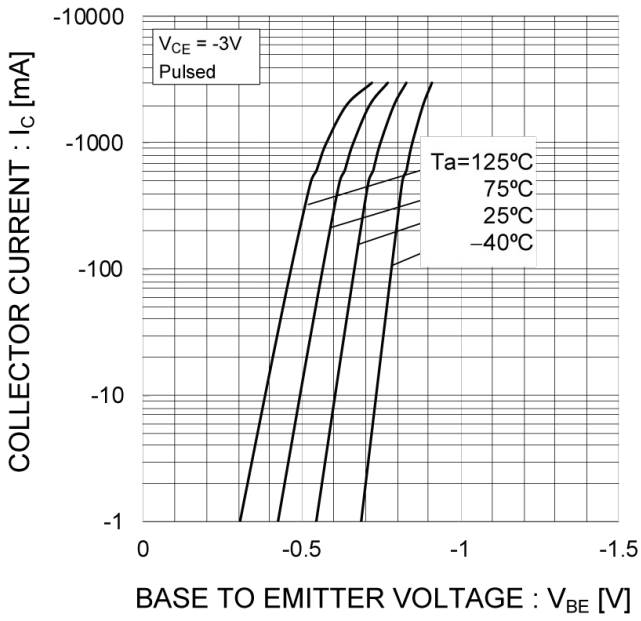


Fig.2 Typical Output Characteristics

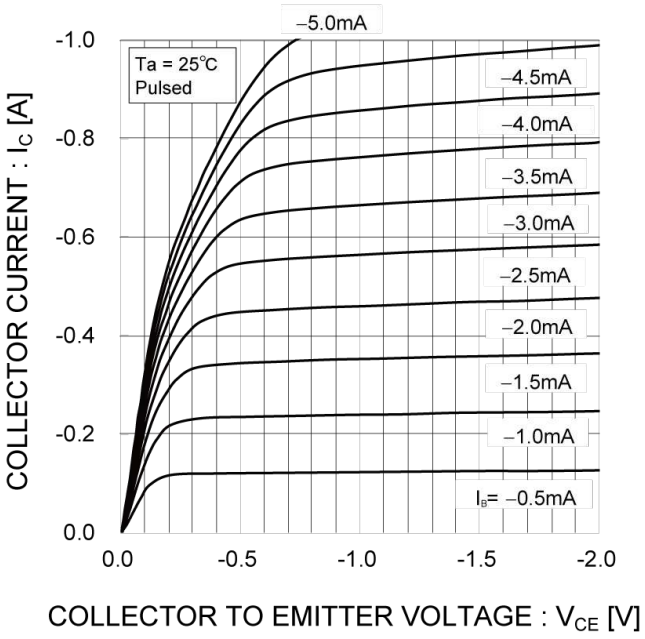


Fig.3 DC Current Gain vs. Collector Current (I)

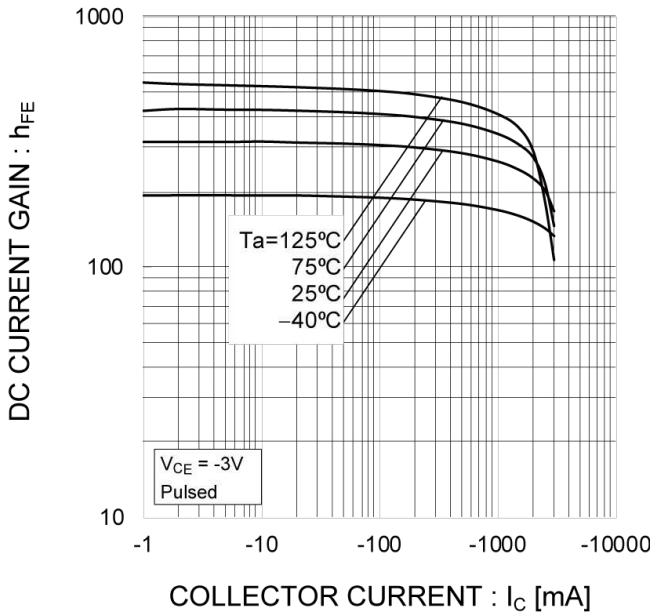
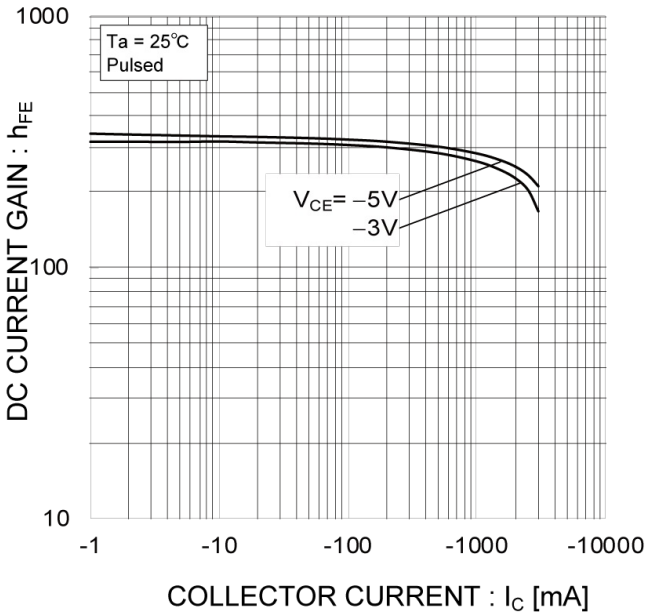


Fig.4 DC Current Gain vs. Collector Current (II)



●Electrical characteristic curves(T_a = 25°C)

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

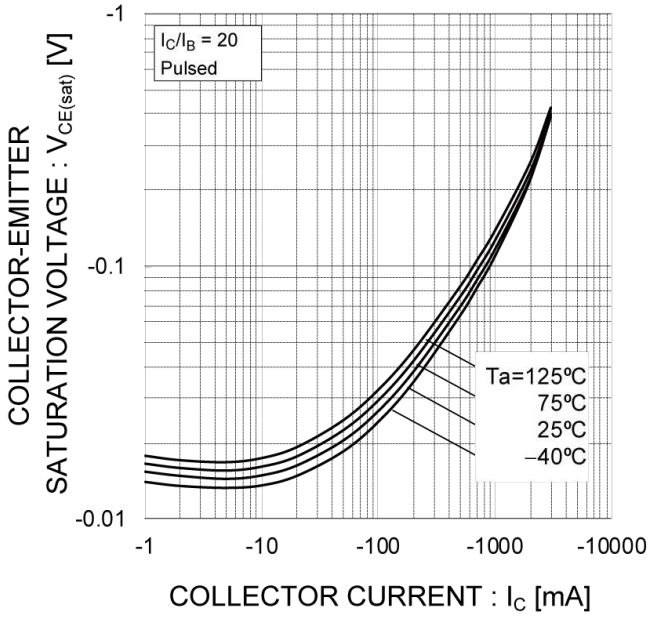


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

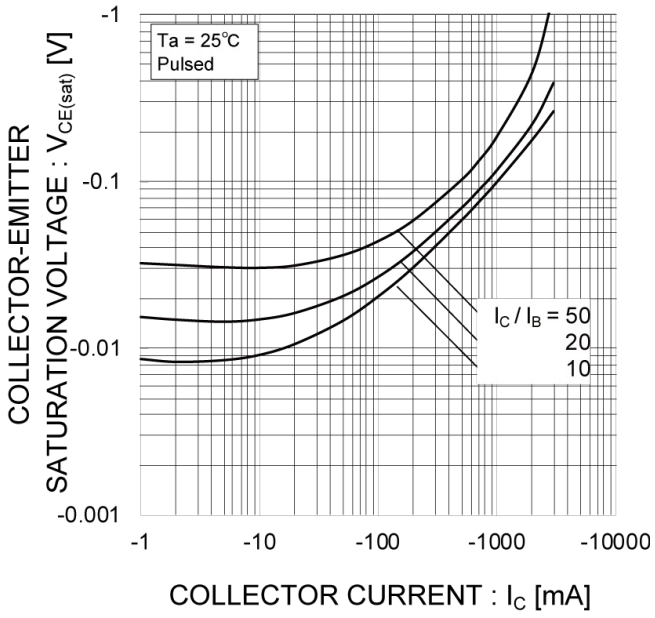


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

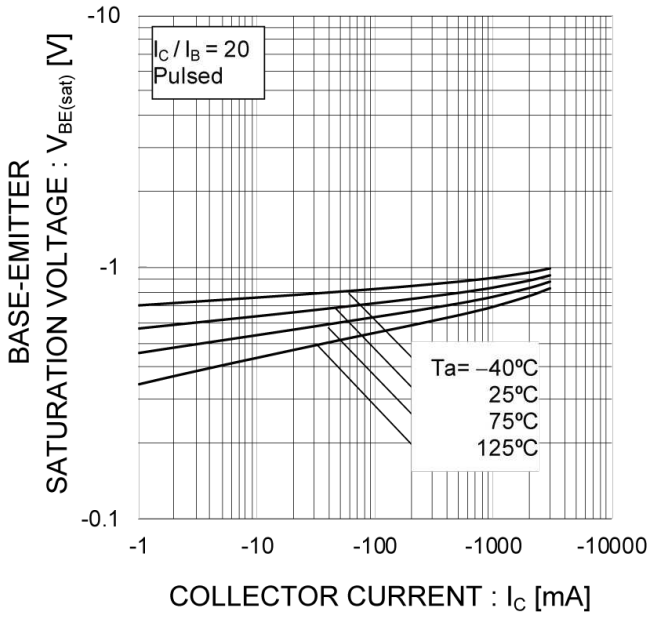
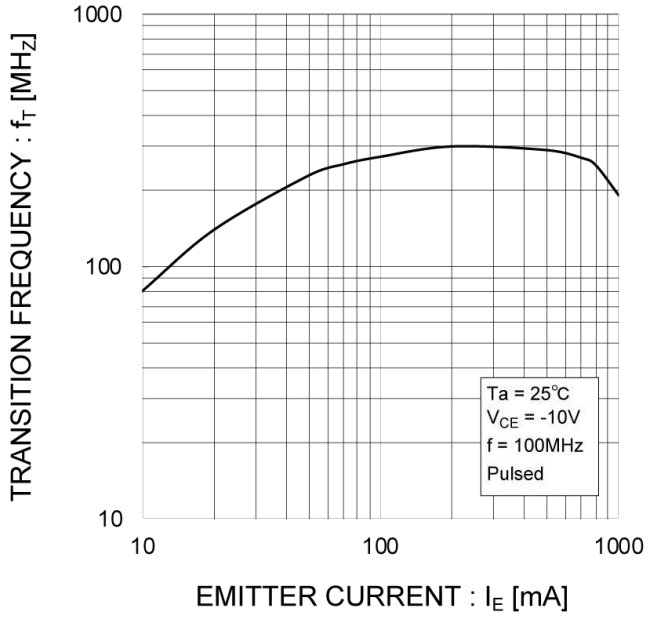


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(T_a = 25°C)

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

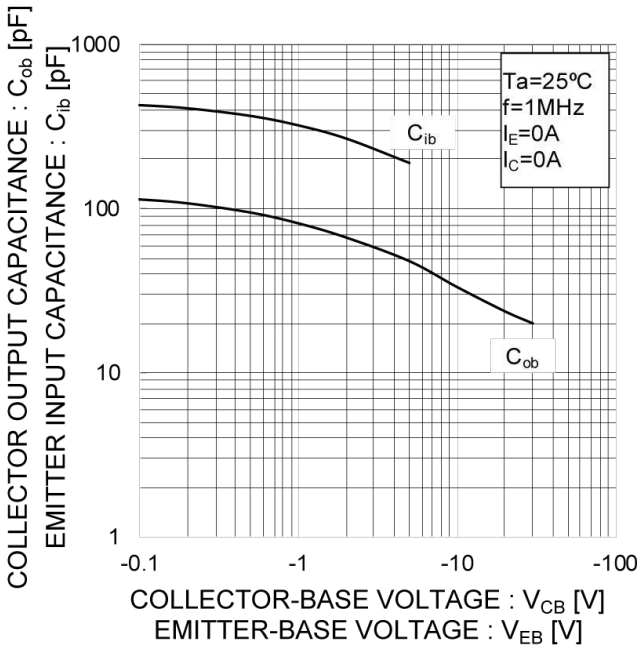
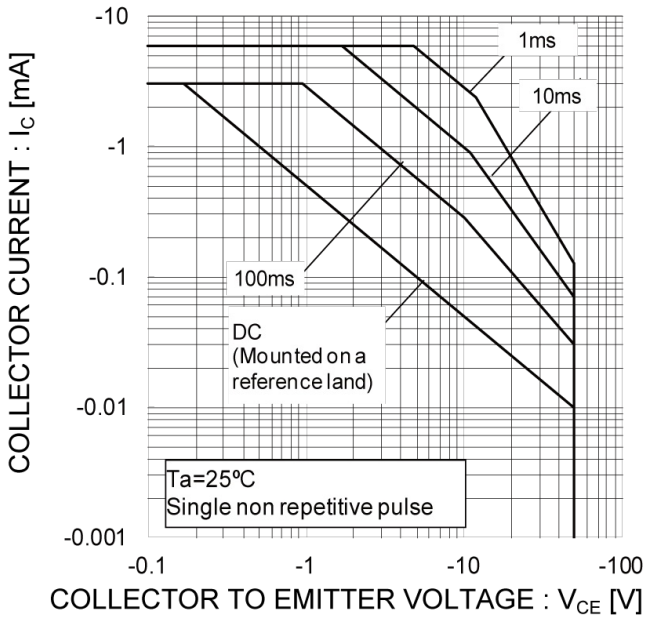
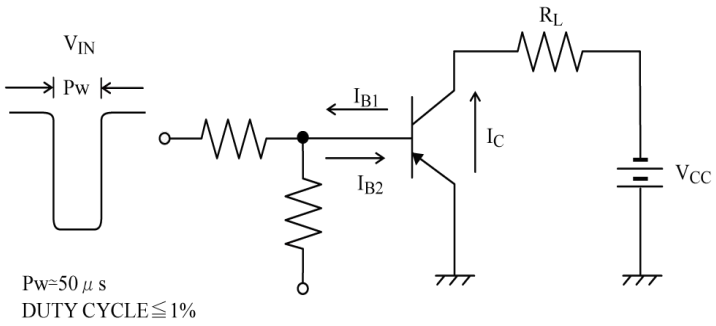
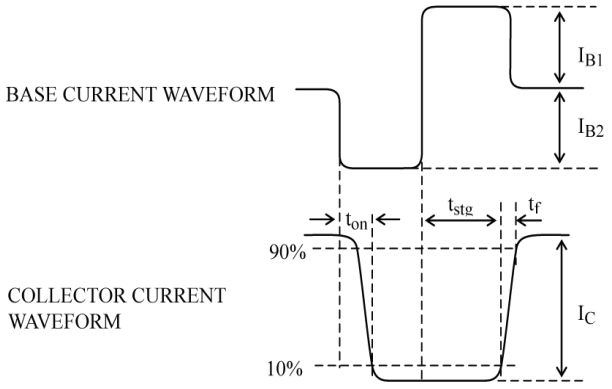


Fig.10 Safe Operating Area



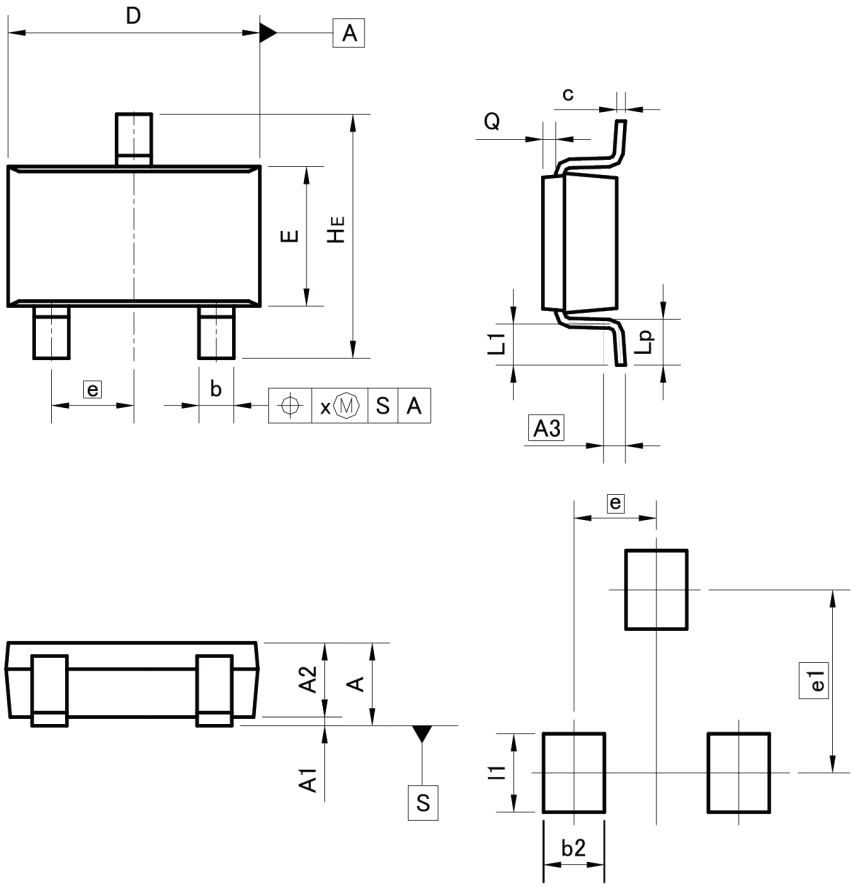
SWITCHING TIME TEST CIRCUIT





●Dimensions

TSMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	–	1.00	–	0.039
A1	0.00	0.10	0.000	0.004
A2	0.75	0.95	0.030	0.037
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.10	0.26	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.05	0.25	0.002	0.010
x	–	0.20	–	0.008

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2		0.70	–	0.028
e1	2.10		0.083	
l1	–	0.90	–	0.035

Dimension in mm/inches

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