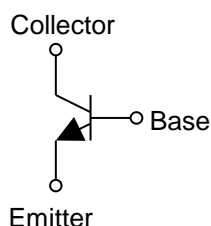


Parameter	Value
$V_{CEO}$	50V
$I_C$	4.0A

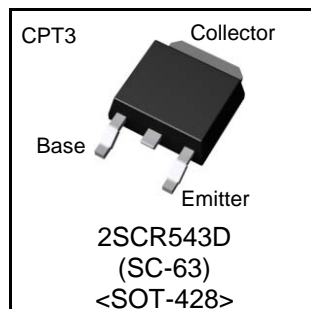
### ●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary PNP Types : 2SAR543D
- 3) Low  $V_{CE(sat)}$   
 $V_{CE(sat)}=0.35V(\text{Max.})$   
 $(I_C/I_B=2A/100mA)$
- 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
2SCR543D	CPT3	6595	TL	330	16	2,500	CR543

### ●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Values	Unit
Collector-base voltage		V <sub>CBO</sub>	50	V
Collector-emitter voltage		V <sub>CEO</sub>	50	V
Emitter-base voltage		V <sub>EBO</sub>	6	V
Collector current	DC	I <sub>C</sub>	4.0	A
	Pulsed	I <sub>CP</sub> <sup>*1</sup>	8.0	A
Power dissipation		P <sub>D</sub> <sup>*2</sup>	1	W
		P <sub>D</sub> <sup>*3</sup>	10	W
Junction temperature		T <sub>j</sub>	150	°C
Range of storage temperature		T <sub>stg</sub>	−55 to +150	°C

\*1 Pw=10ms , single pulse

\*2 Mounted on a substrate

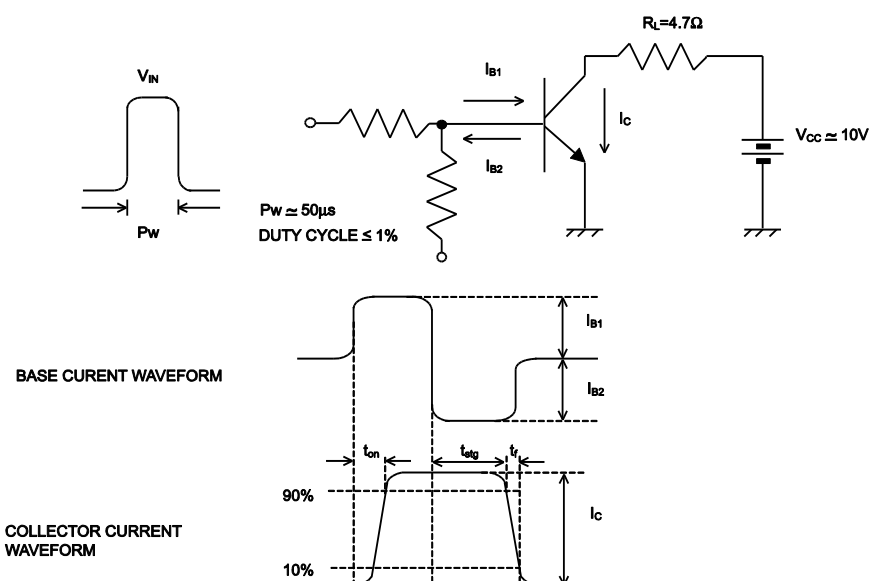
\*3 Tc=25°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1\text{mA}$	50	-	-	V
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = 100\mu\text{A}$	50	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu\text{A}$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50\text{V}$	-	-	1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4\text{V}$	-	-	1	$\mu\text{A}$
Collector-emitter saturation voltage	$V_{CE(sat)}^{*1}$	$I_C = 2\text{A}, I_B = 100\text{mA}$	-	0.13	0.35	V
DC current gain	$h_{FE}$	$V_{CE} = 3\text{V}, I_C = 100\text{mA}$	180	-	450	-
Transition frequency	$f_T$	$V_{CE} = 10\text{V}, I_E = -500\text{mA}$ $f = 100\text{MHz}$	-	300	-	MHz
Output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0\text{A}$ , $f = 1\text{MHz}$	-	20	-	pF
Turn-on time	$t_{on}^{*2}$	$I_C = 2\text{A}$ $I_{B1} = 200\text{mA}$ $I_{B2} = -200\text{mA}$ $V_{CC} \approx 10\text{V}$	-	50	-	ns
Storage time	$t_{stg}^{*2}$		-	450	-	ns
Fall time	$t_f^{*2}$		-	85	-	ns

\*1 Pulsed

\*2 See switching time test circuit

**●Switching time test circuit**


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

Fig.1 Ground Emitter Propagation Characteristics

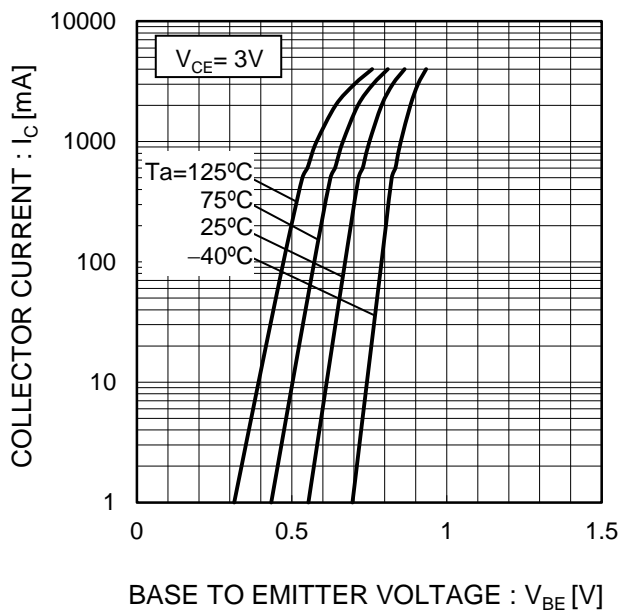


Fig.2 Typical Output Characteristics

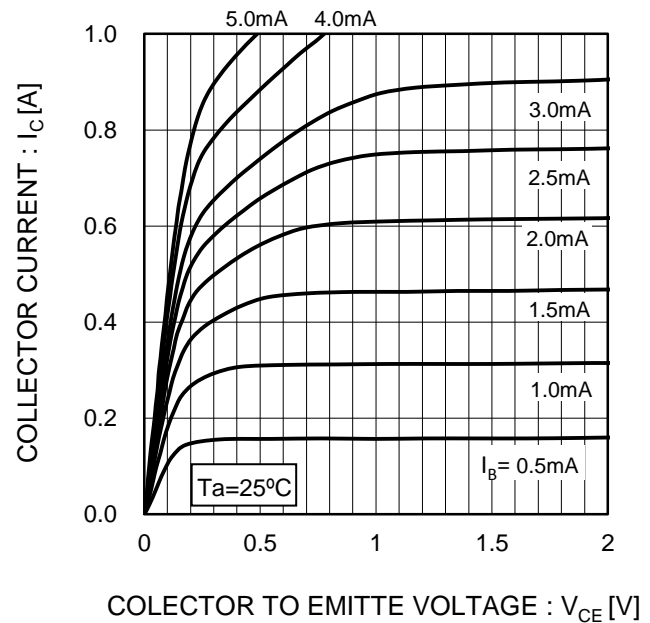


Fig.3 DC Current Gain vs. Collector Current(I)

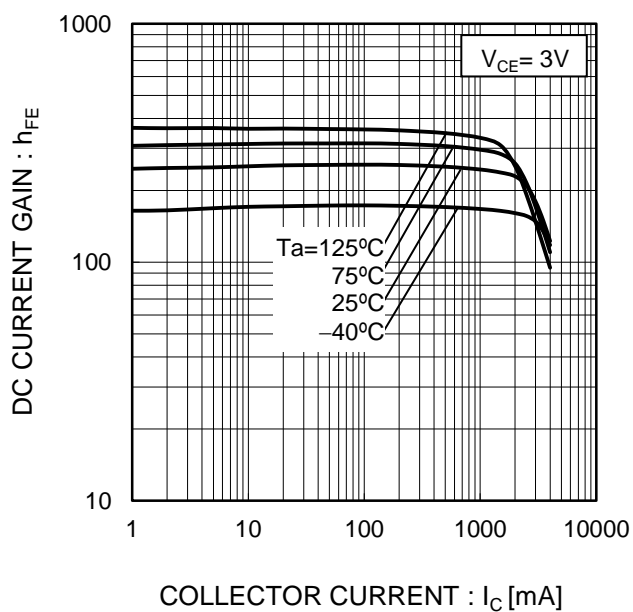
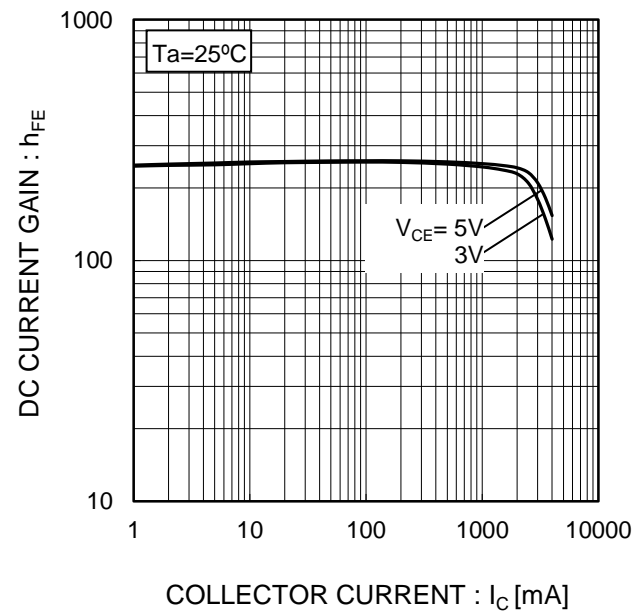


Fig.4 DC current gain vs. output current (II)



●Electrical characteristic curves(Ta = 25°C)

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

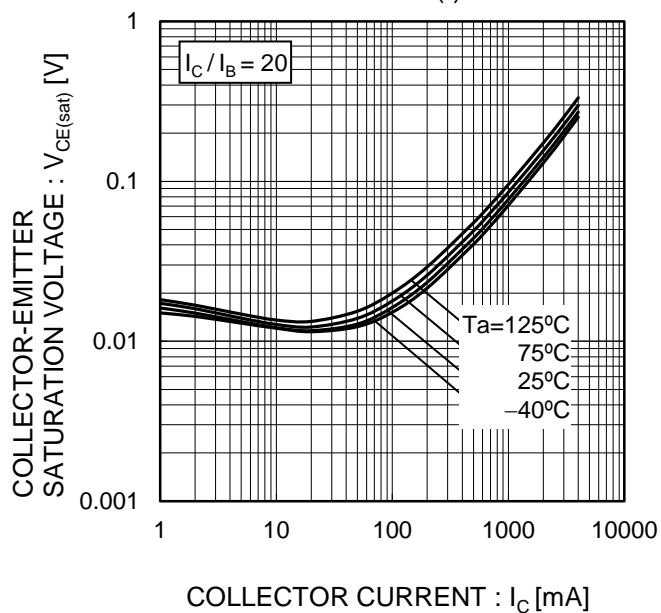


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

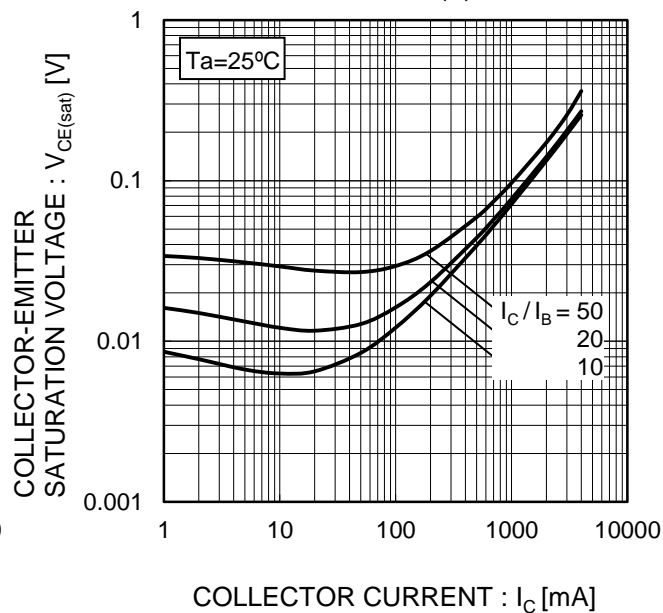


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

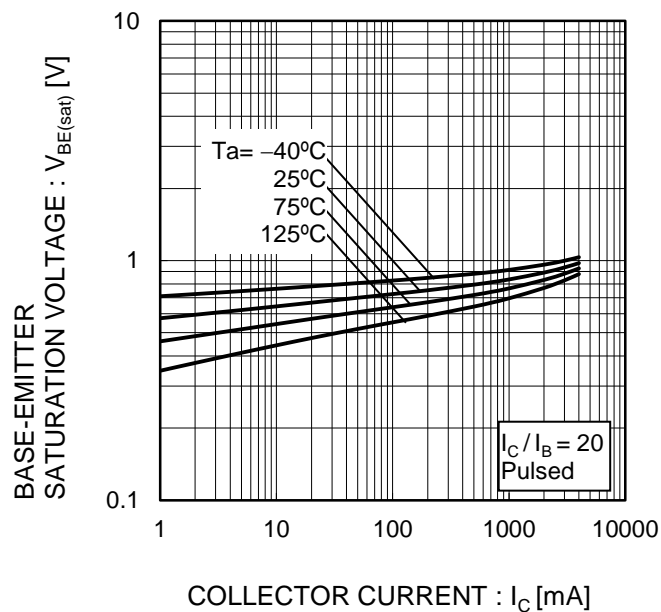
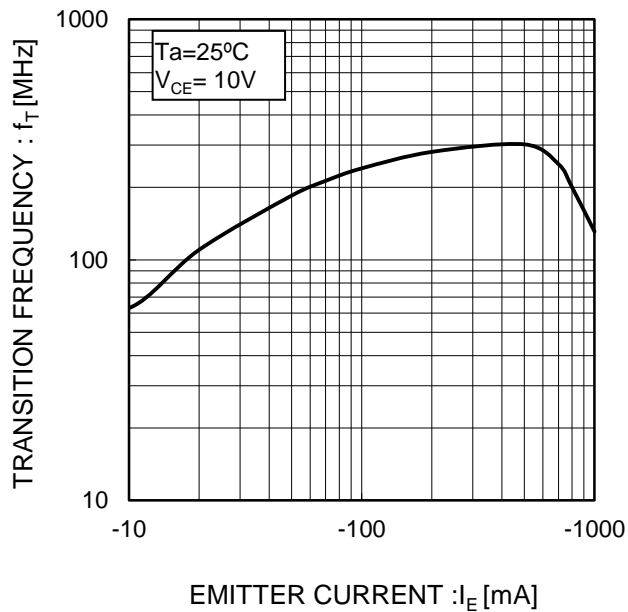


Fig.8 Gain Bandwidth Product vs. Emitter Current



# ●Electrical characteristic curves(Ta = 25°C)

Fig.9 Emitter input capacitance vs.  
Emitter-Base Voltage  
Collector output capacitance vs.  
Collector-Base Voltage

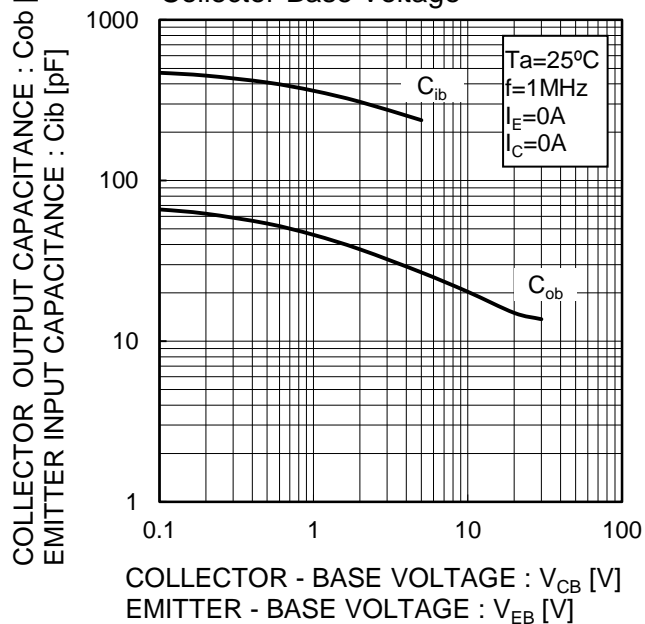
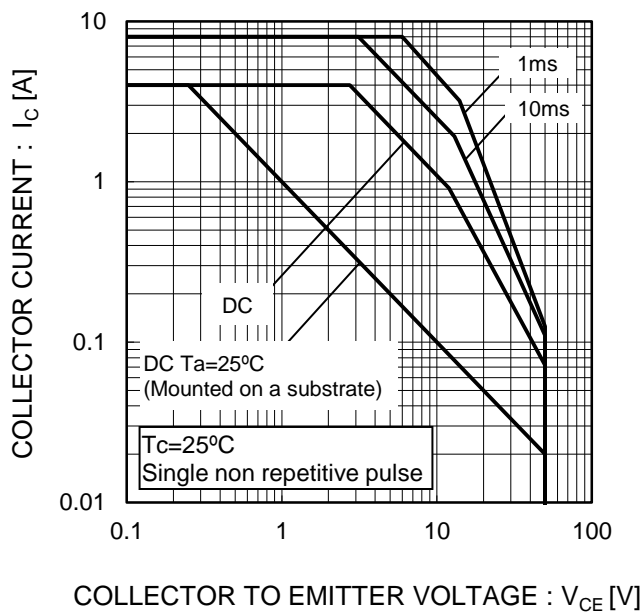
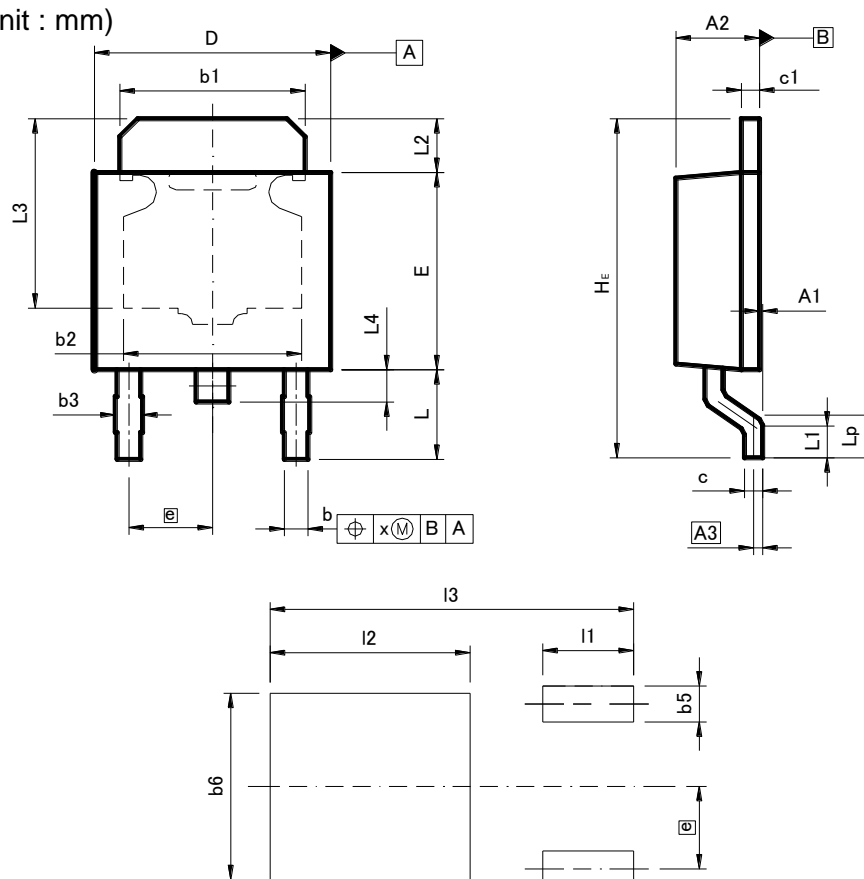


Fig.10 Safe Operating Area



## ●Dimensions (Unit : mm)

CPT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A1	0.00	0.15	0.000	0.006
A2	2.20	2.50	0.087	0.098
A3	0.25		0.010	
b	0.55	0.75	0.022	0.030
b1	5.00	5.30	0.197	0.209
b2	5.00		0.197	
b3	0.75		0.030	
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.30	6.70	0.248	0.264
E	5.40	5.80	0.213	0.228
e	2.30		0.091	
HE	9.00	10.00	0.354	0.394
L	2.20	2.80	0.087	0.110
L1	0.80	1.40	0.031	0.055
L2	1.20	1.80	0.047	0.071
L3	5.30		0.209	
L4	0.90		0.035	
Lp	1.00	1.60	0.039	0.063
x	—	0.25	—	0.010

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b5	—	1.00	—	0.04
b6	—	5.20	—	0.205
l1	—	2.50	—	0.098
l2	—	5.50	—	0.217
l3	—	10.00	—	0.394

Dimension in mm / inches

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