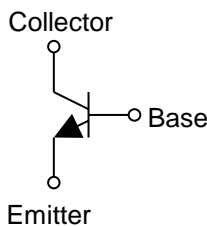


Parameter	Value
$V_{CEO}$	50V
$I_C$	4.0A

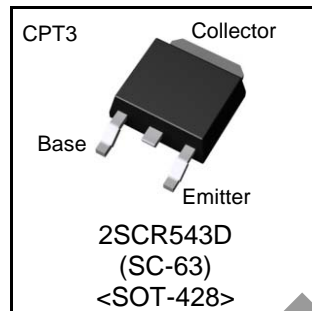
### ●Features

- 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	$V_{CBO}$	50	V	
Collector-emitter voltage	$V_{CEO}$	50	V	
Emitter-base voltage	$V_{EBO}$	6	V	
Collector current	DC	$I_C$	4.0	A
	Pulsed	$I_{CP}^{*1}$	8.0	A
Power dissipation	$P_D^{*2}$	1	W	
	$P_D^{*3}$	10	W	
Junction temperature	$T_j$	150	°C	
Range of storage temperature	$T_{stg}$	-55 to +150	°C	

\*1 Pw=10ms , single pulse

\*2 Mounted on a substrate

\*3 Tc=25°C

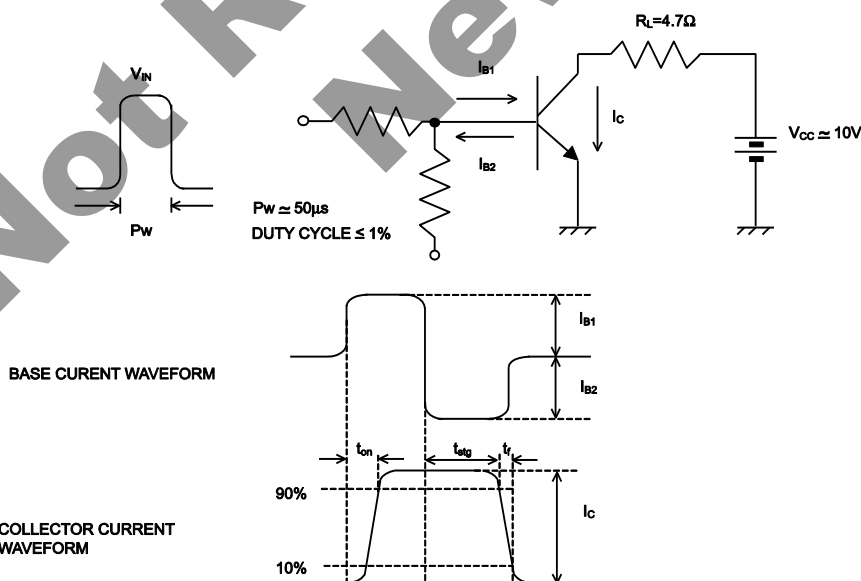
●Electrical characteristics(Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1mA$	50	-	-	V
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = 100\mu A$	50	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu A$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 50V$	-	-	1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4V$	-	-	1	$\mu A$
Collector-emitter saturation voltage	$V_{CE(sat)}^{*1}$	$I_C = 2A, I_B = 100mA$	-	0.13	0.35	V
DC current gain	$h_{FE}$	$V_{CE} = 3V, I_C = 100mA$	180	-	450	-
Transition frequency	$f_T$	$V_{CE} = 10V, I_E = -500mA$ $f = 100MHz$	-	300	-	MHz
Output capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0A,$ $f = 1MHz$	-	20	-	pF
Turn-on time	$t_{on}^{*2}$	$I_C = 2A$ $I_{B1} = 200mA$ $I_{B2} = -200mA$ $V_{CC} \approx 10V$	-	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(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

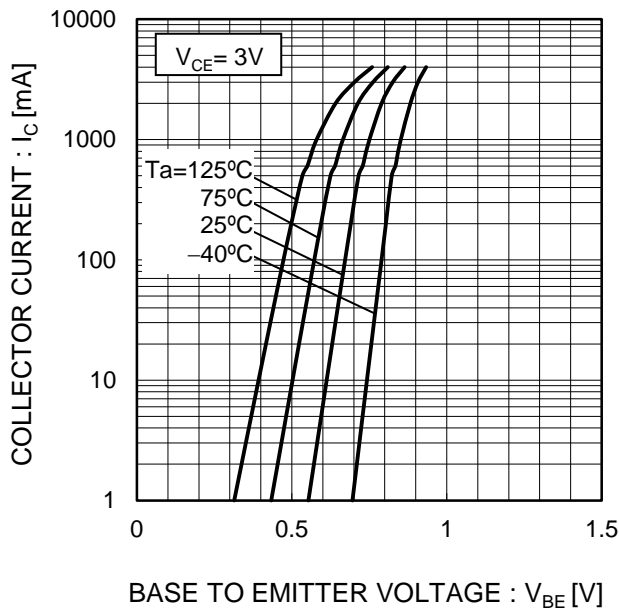


Fig.2 Typical Output Characteristics

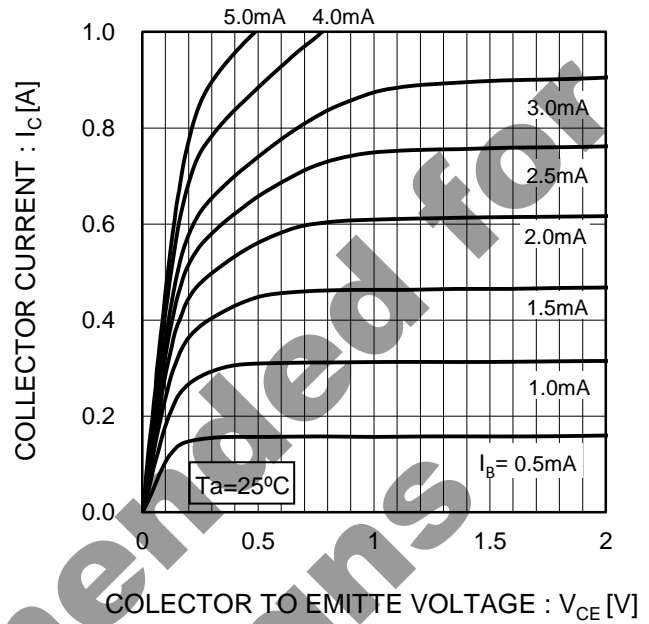


Fig.3 DC Current Gain vs. Collector Current(I)

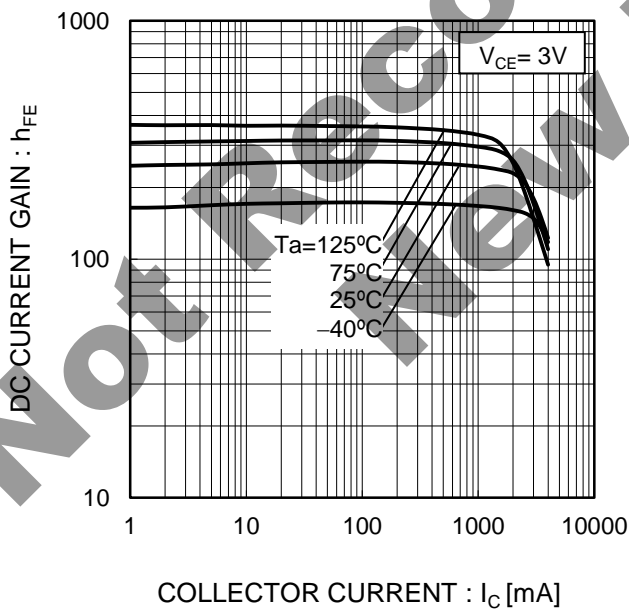
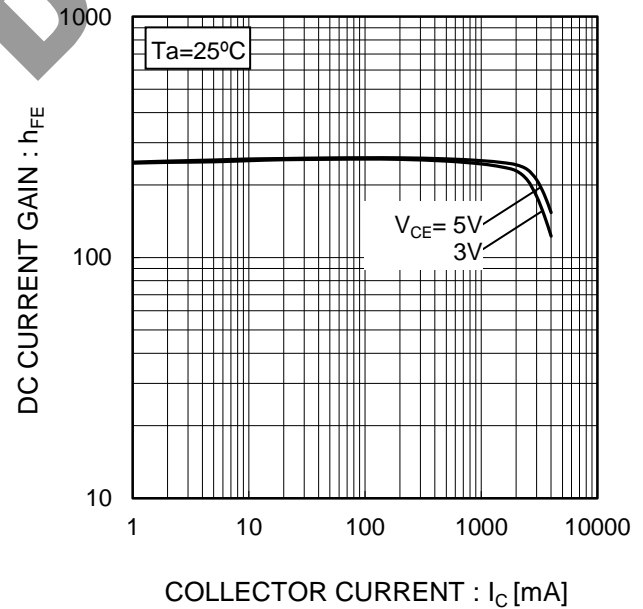


Fig.4 DC current gain vs. output current (II)



●Electrical characteristic curves(Ta = 25°C)

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

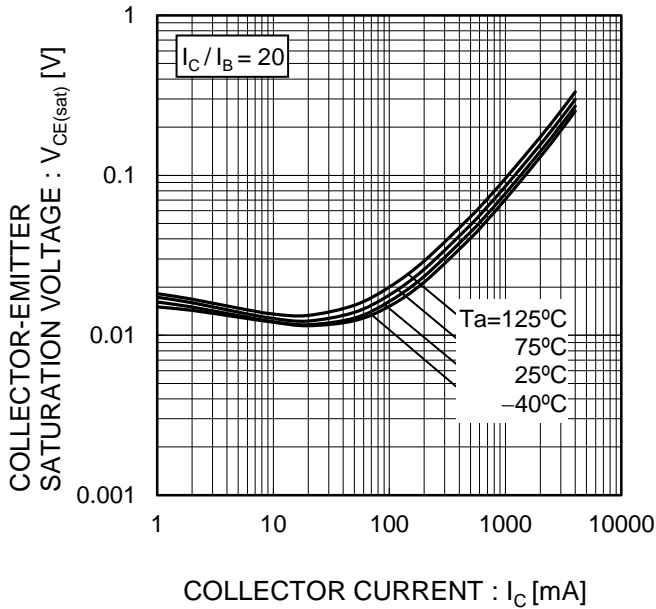


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

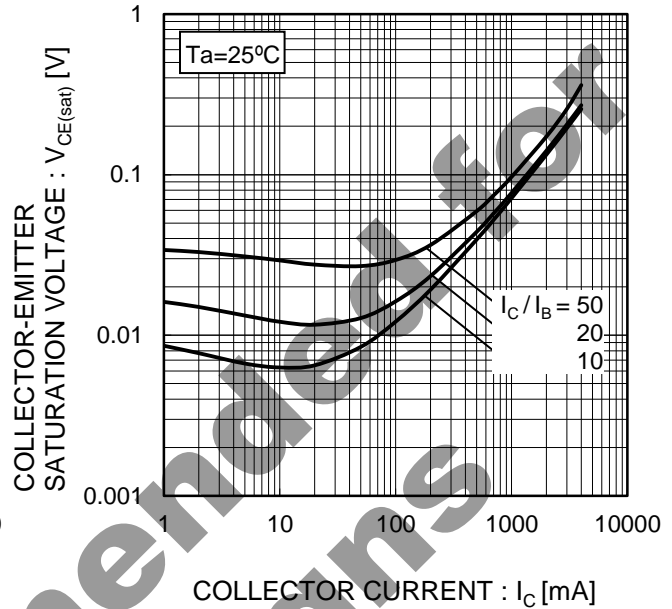


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

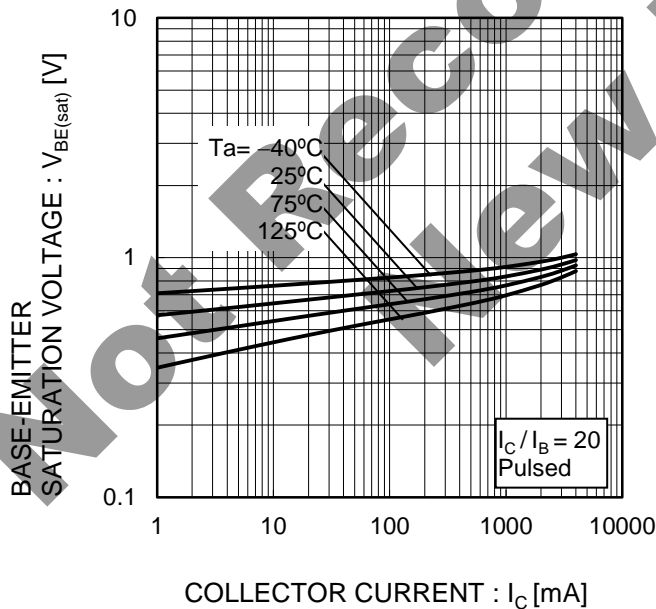
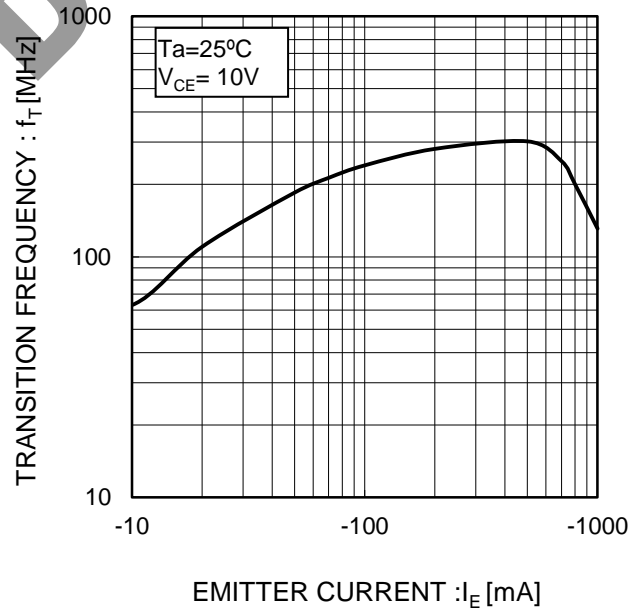


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

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

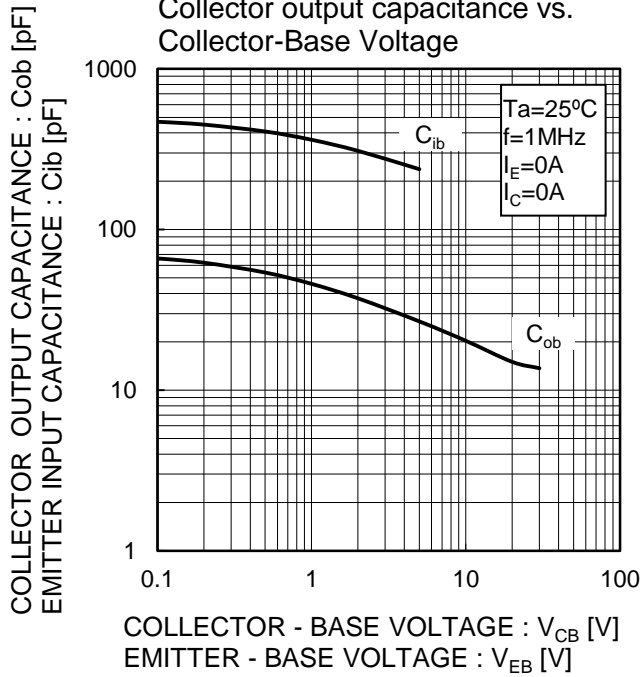
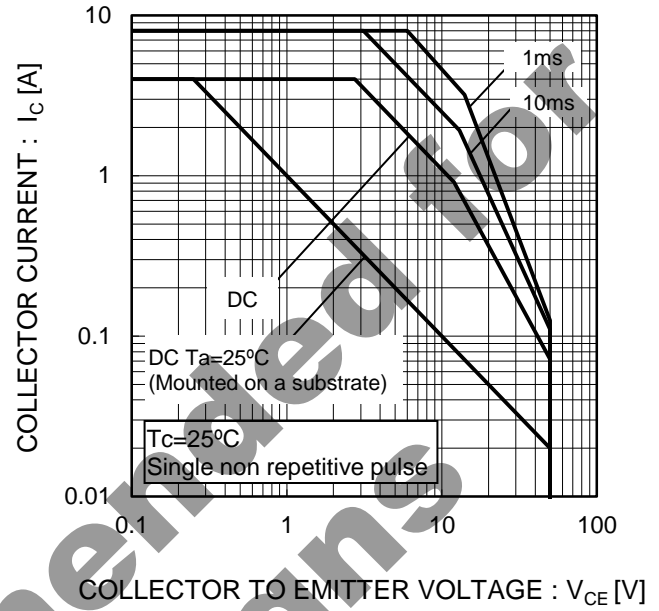


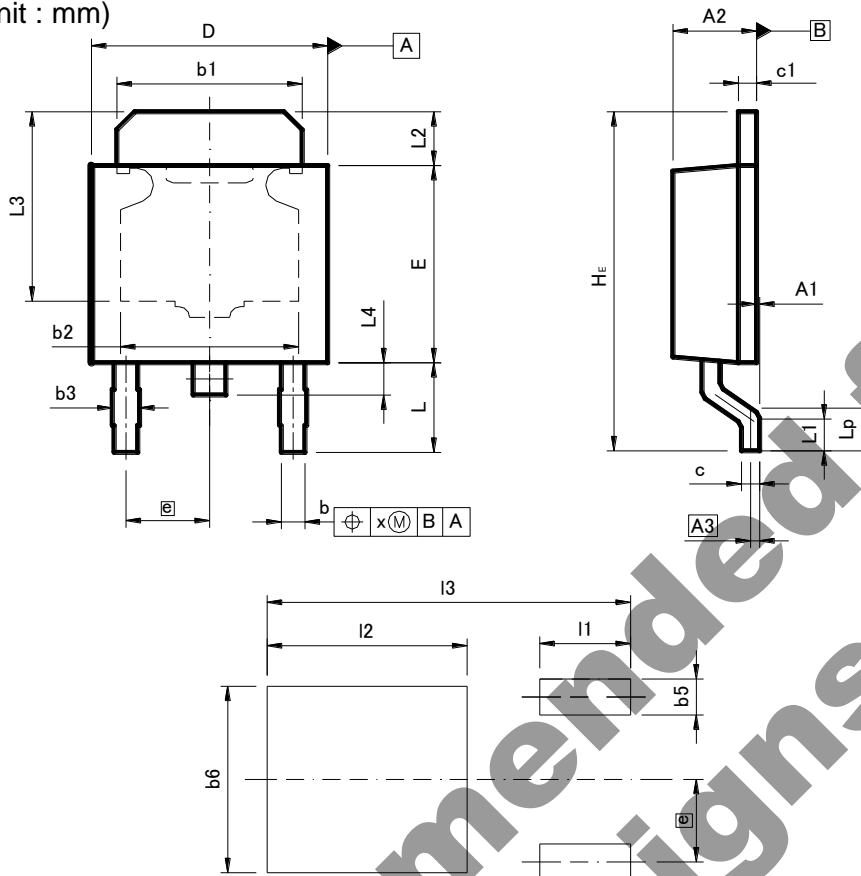
Fig.10 Safe Operating Area



Not Recommended for New Design

●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
I1	-	2.50	-	0.098
I2	-	5.50	-	0.217
I3	-	10.00	-	0.394

Dimension in mm / inches

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