PNP -10A -20V Middle Power Transistor

Parameter	Value
$V_{\sf CEO}$	-20V
I _C	-10A

Features

1) Suitable for Middle Power Driver

2) Complementary NPN Types: 2SC5001

3) Low V_{CE(sat)}

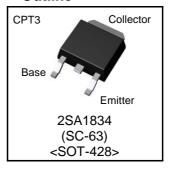
$$V_{CE(sat)} = -0.25V(Max.)$$

 $(I_C/I_B = -4A/-0.05A)$

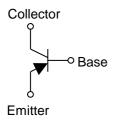
4) Large collector current : $I_C = -10A$ (DC Max.)

5) Lead Free/RoHS Compliant.

Outline



•Inner circuit



Applications

Motor driver, LED driver Power supply, strobe

Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SA1834	CPT3	6595	TL	330	16	2,500	A1834

● Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Values	Unit
Collector-base voltage		V _{CBO}	-30	V
Collector-emitter voltage		V _{CEO}	-20	V
Emitter-base voltage		V_{EBO}	-6	V
Collector current	DC	I _C	-10	Α
	Pulsed	I _{CP} *1	−15	Α
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

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Collector-emitter breakdown voltage	BV _{CEO}	$I_C = -1mA$	-20	-	-	V
Collector-base breakdown voltage	BV _{CBO}	$I_{C} = -50 \mu A$	-30	ı	ı	V
Emitter-base breakdown voltage	BV _{EBO}	I _E = -50μA	-6	ı	ı	V
Collector cut-off current	I _{CBO}	V _{CB} = -20V	ı	ı	–1	μА
Emitter cut-off current	I _{EBO}	V _{EB} = -5V	-	-	-1	μΑ
Collector-emitter saturation voltage	V _{CE(sat)} *4	$I_C = -4A, I_B = -0.05A$	ı	-0.16	-0.25	V
Base-emitter saturation voltage	V _{BE(sat)} *4	$I_C = -4A, I_B = -0.05A$	ı	-0.9	-1.2	V
DC current gain	h _{FE} 1 *4	$V_{CE} = -2V, I_{C} = -0.5A$	180	ı	560	-
DC current gain	h _{FE} 2 *4	$V_{CE} = -2V, I_{C} = -4A$	82	ı	ı	-
Transition frequency	f _T *4	$V_{CE} = -5V, I_{E} = 1.5A$ f=50MH _Z	ı	150	ı	MHz
Output capacitance	C _{ob}	$V_{CB} = -10V$, $I_E = 0A$ f = 1MHz	-	220	-	pF

^{*4} Pulsed

$\bullet h_{\text{FE}} \ rank \ categories$

Rank	R	S
h _{FE}	180 to 390	270 to 560

^{*2} Mounted on a substrate

^{*3} Tc=25°C

●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

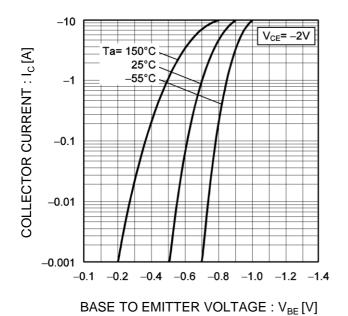
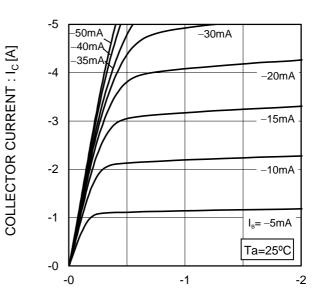


Fig.2 Typical Output Characteristics



COLECTOR TO EMITTE VOLTAGE: V_{CE}[V]

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

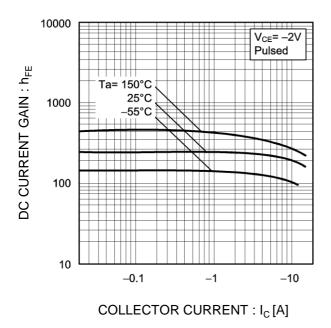
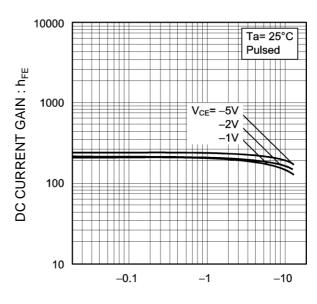


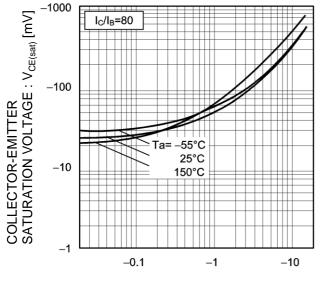
Fig.4 DC current gain vs. output current (II)



COLLECTOR CURRENT : I_C [A]

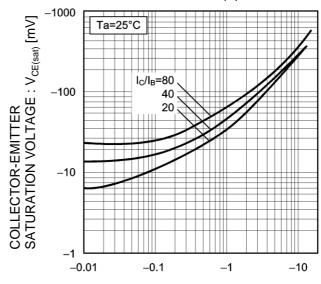
●Electrical characteristic curves(Ta = 25°C)

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



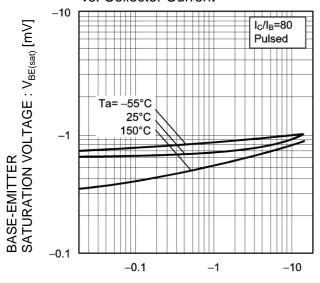
COLLECTOR CURRENT : I_C[A]

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



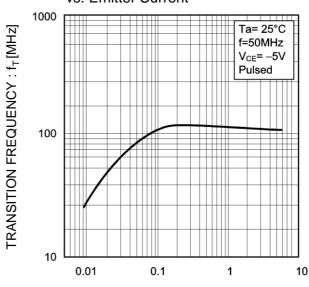
COLLECTOR CURRENT : I_C[A]

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



COLLECTOR CURRENT : $I_C[A]$

Fig.8 Gain Bandwidth Product vs. Emitter Current



EMITTER CURRENT : I_E [A]

●Electrical characteristic curves(Ta = 25°C)

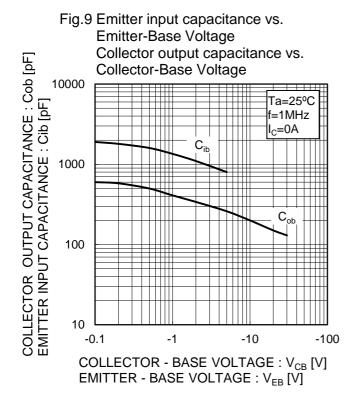
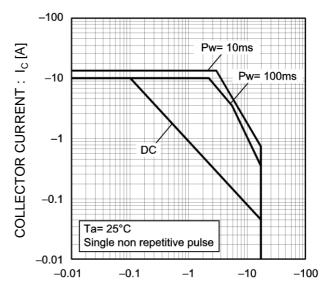
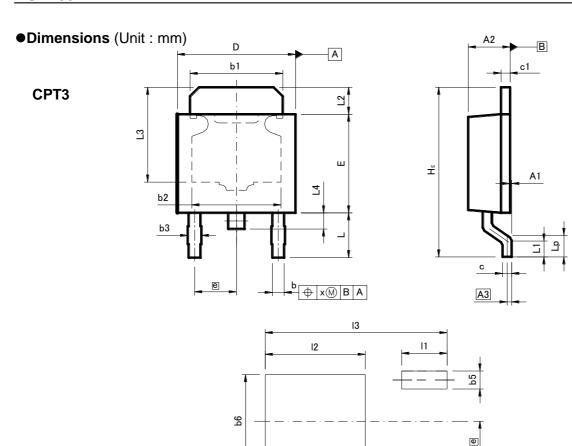


Fig.10 Safe Operating Area



COLLECTOR TO EMITTER VOLTAGE : $V_{CE}\left[V\right]$



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

DIM	MILIMETERS		INCHES		
DIM	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	0.0	10	
b	0.55	0.75	0.022	0.030	
b1	5.00	5.30	0.197	0.209	
b2	5.0		0.1	97	
b3	0.	75	0.030		
С	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	
е	2.3	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	
Х	_	0.25	_	0.010	

DIM	MILIM	ETERS	INCHES		
DIM	MIN	MAX	MIN	MAX	
b5	_	1.00	-	0.04	
b6	_	5.20	ı	0.205	
l1	_	2.50	-	0.098	
12	_	5.50	_	0.217	
13	-	10.00	_	0.394	

Dimension in mm / inches

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