



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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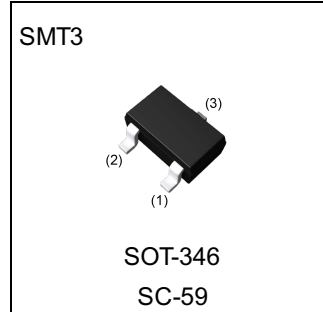
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Parameter	Value
$V_{CEO}$	15V
$I_C$	1A

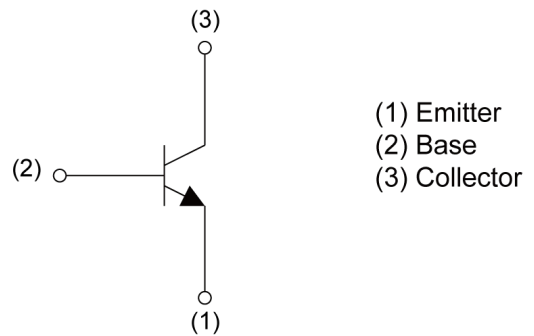
●Outline



●Features

- 1)Low saturation voltage,  
 $V_{CE(sat)}=0.3V(\text{Max.})$  at  $I_C/I_B=400mA/20mA$
- 2) $I_C=1A$ .
- 3)Complements the 2SB1590K.

●Inner circuit



●Application

LOW FREQUENCY POWER AMPLIFIER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SD2444K	SMT3	2928	T146	180	8	3000	BS

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Values	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	15	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	1	A
	$I_{CP}^{*1}$	2	A
Power dissipation	$P_D^{*2}$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Range of storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	$BV_{CBO}$	$I_C = 50\mu\text{A}$	15	-	-	V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1\text{mA}$	15	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 50\mu\text{A}$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 12\text{V}$	-	-	500	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5\text{V}$	-	-	500	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 400\text{mA}, I_B = 20\text{mA}$	-	-	300	mV
DC current gain	$h_{FE1}$	$V_{CE} = 2\text{V}, I_C = 50\text{mA}$	180	-	390	-
	$h_{FE2}$	$V_{CE} = 2\text{V}, I_C = 800\text{mA}$	80	-	-	
Transition frequency	$f_T$	$V_{CE} = 2\text{V}, I_E = -50\text{mA},$ $f = 100\text{MHz}$	-	200	-	MHz
Output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0\text{A},$ $f = 1\text{MHz}$	-	15	-	pF

$h_{FE}$  values are classified as follows :

rank	R	-	-	-	-
$h_{FE1}$	180-390	-	-	-	-

\*1  $P_w=10\text{ms}$  Single Pulse

\*2 Each terminal mounted on a reference land.

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

Fig.1 Ground Emitter Propagation Characteristics

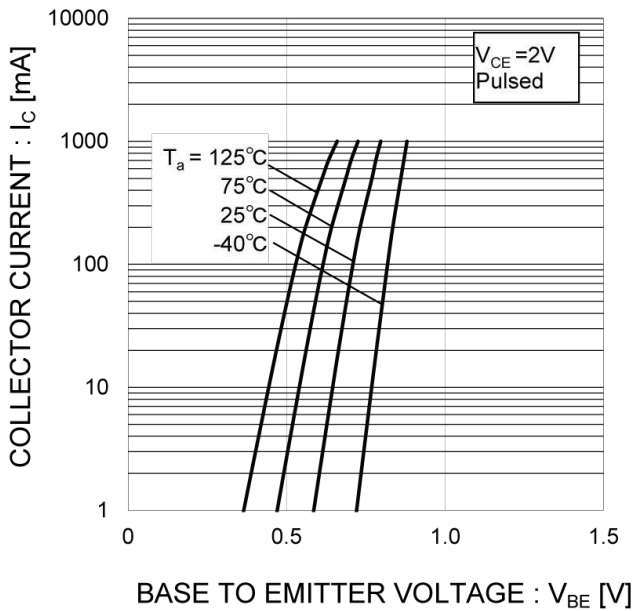


Fig.2 Typical Output Characteristics

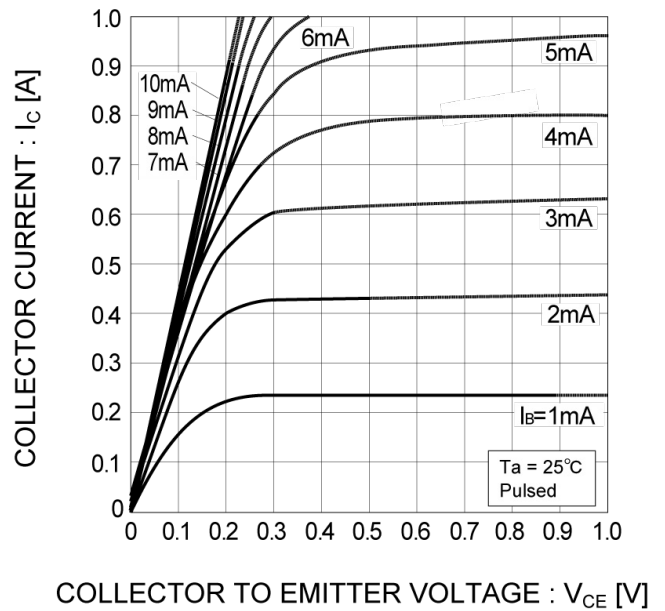


Fig.3 DC Current Gain vs. Collector Current (I)

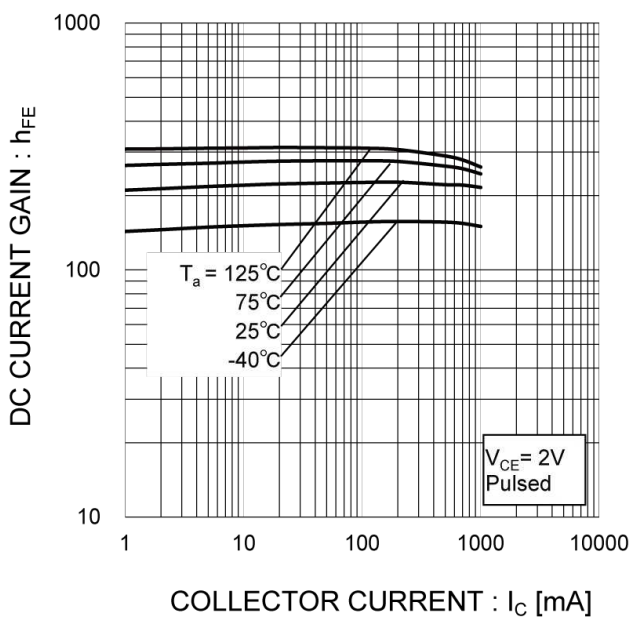
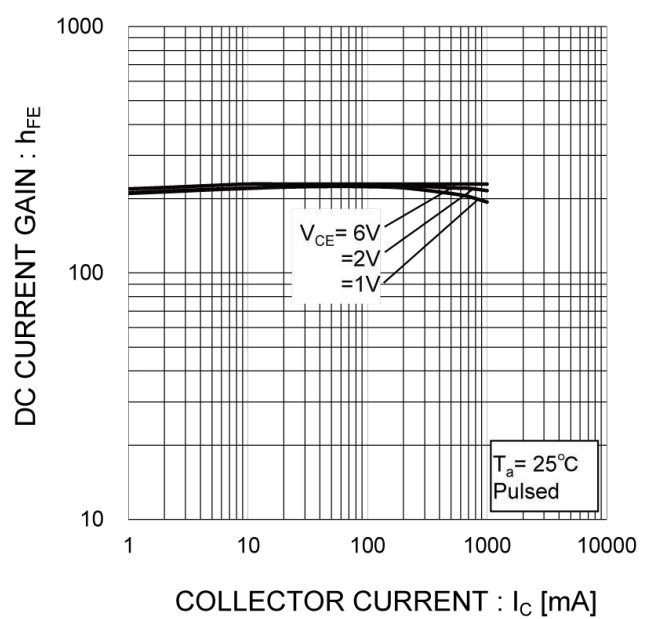


Fig.4 DC Current Gain vs. Collector Current (II)





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

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

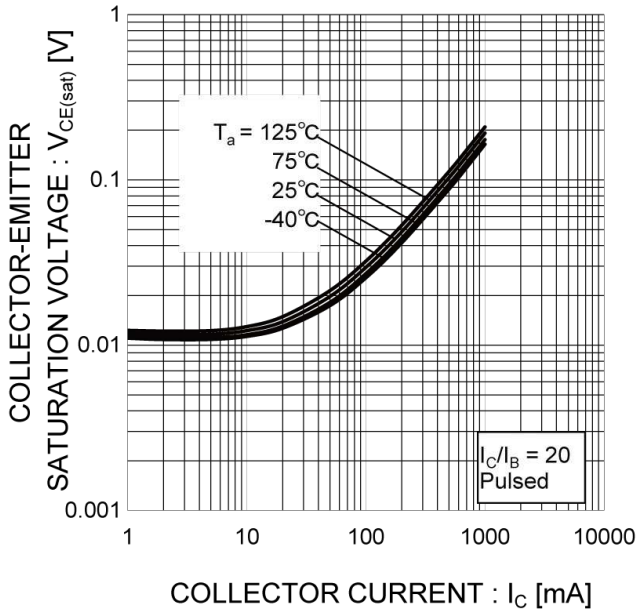


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

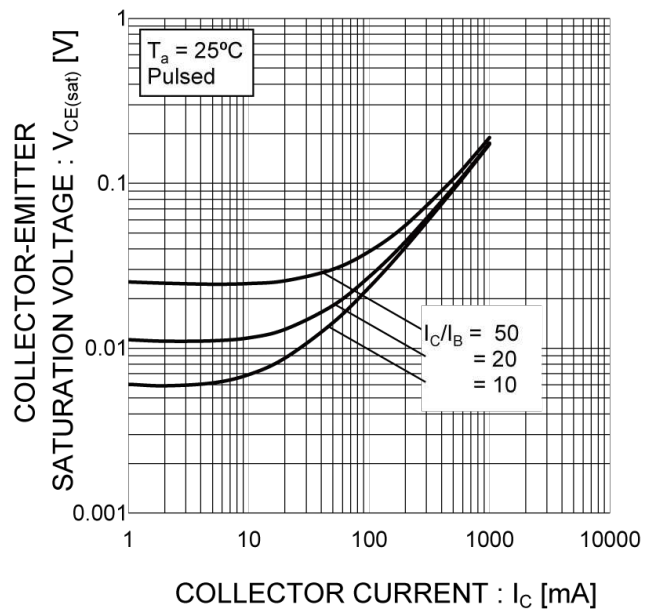


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

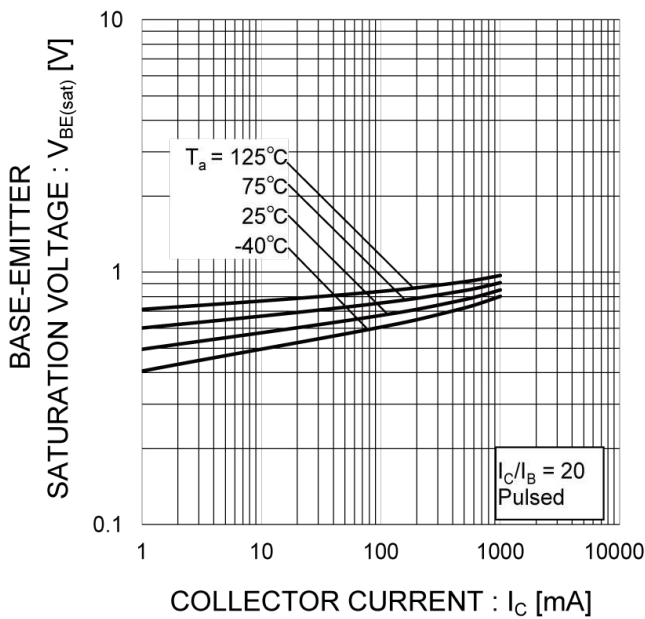
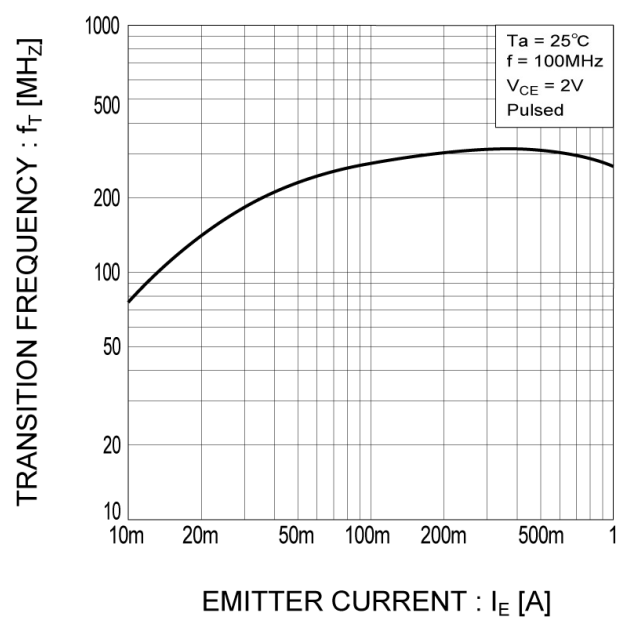


Fig.8 Gain Bandwidth Product vs. Emitter Current



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

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

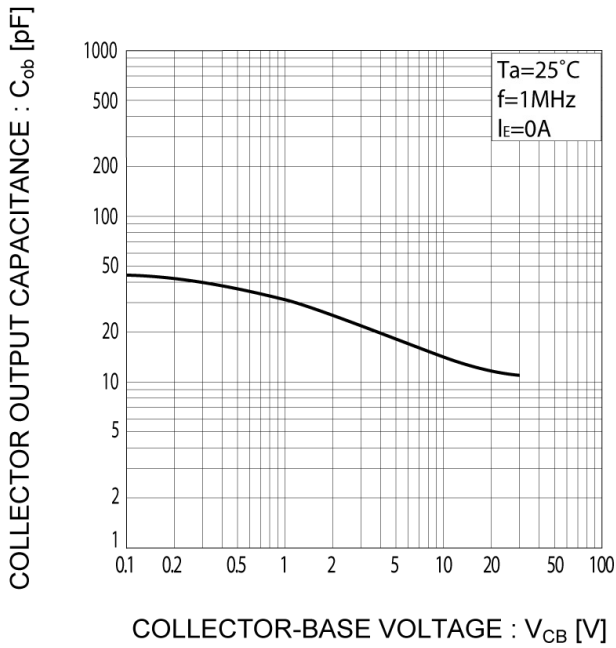
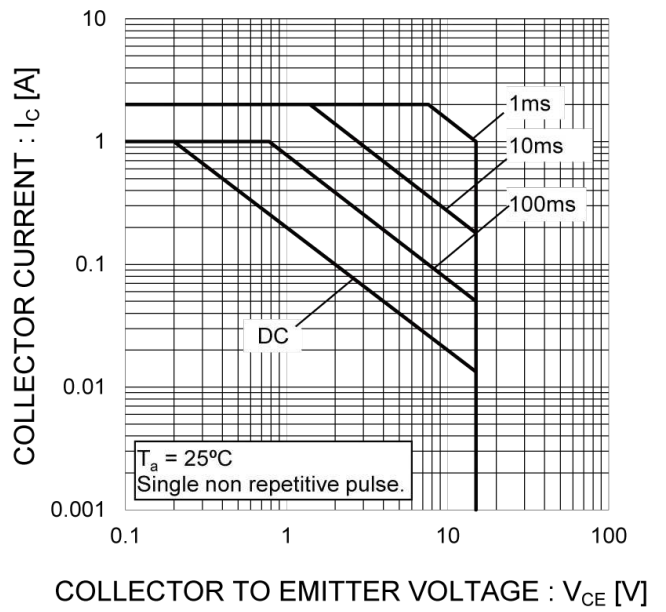
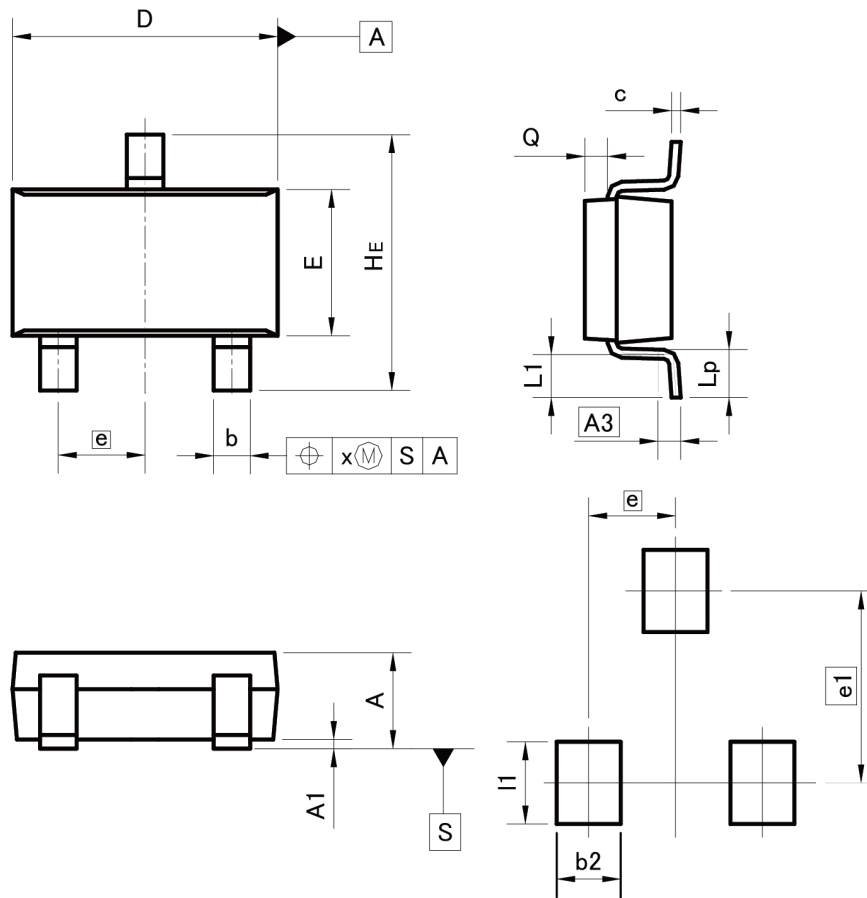


Fig.10 Safe Operating Area



●Dimensions

SMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.09	0.25	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	0.20	0.30	0.008	0.012
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.60	-	0.024
e1	2.10		0.083	
I1	-	0.90	-	0.035

Dimension in mm/inches

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