



## 2SC1815

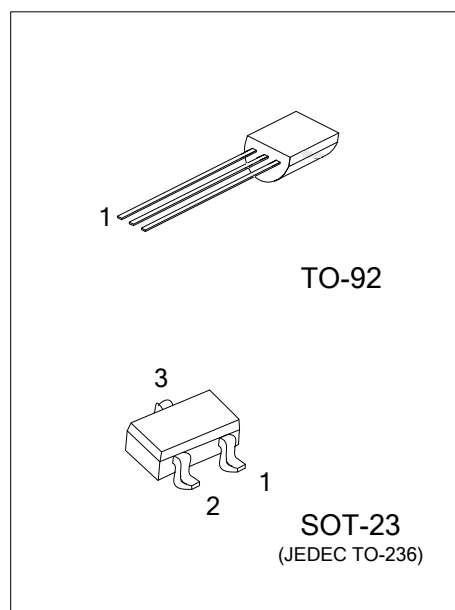
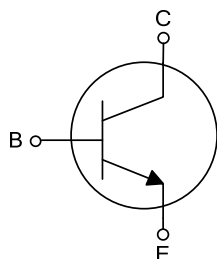
## NPN SILICON TRANSISTOR

AUDIO FREQUENCY  
AMPLIFIER HIGH  
FREQUENCY OSC NPN  
TRANSISTOR

### FEATURES

- \* Collector-Emitter voltage:  
 $BV_{CEO}=50V$
- \* Collector current up to 150mA
- \* High  $h_{FE}$  linearity
- \* Complimentary to UTC 2SA1015

### SYMBOL



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	2SC1815G-xx-AE3-R	SOT-23	E	B	C	Tape Reel
2SC1815L-xx-T92-B	2SC1815G-xx-T92-B	TO-92	E	C	B	Tape Box
2SC1815L-xx-T92-K	2SC1815G-xx-T92-K	TO-92	E	C	B	Bulk

Note: Pin Assignment: E: Emitter C: Collector B: Base

<p>2SC1815G-xx-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AE3: SOT-23, T92: TO-92 (3) xx: Refer to Classification of <math>h_{FE1}</math> (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

SOT-23	TO-92

■ ABSOLUTE MAXIMUM RATING ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified )

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		$V_{\text{CBO}}$	60	V
Collector-emitter voltage		$V_{\text{CEO}}$	50	V
Emitter-Base Voltage		$V_{\text{EBO}}$	5	V
Collector Current		$I_{\text{C}}$	150	mA
Base Current		$I_{\text{B}}$	50	mA
Power Dissipation ( $T_A=25^{\circ}\text{C}$ )	SOT-23	$P_{\text{D}}$	300	mW
	TO-92		625	mW
Junction Temperature		$T_{\text{J}}$	+125	$^{\circ}\text{C}$
Storage Temperature		$T_{\text{STG}}$	-55 ~ +125	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	SOT-23	$\theta_{\text{JC}}$	110	$^{\circ}\text{C/W}$
	TO-92		80	$^{\circ}\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	$I_{\text{CBO}}$	$V_{\text{CB}}=60\text{V}, I_{\text{E}}=0$			100	nA
Emitter Cut-off Current	$I_{\text{EBO}}$	$V_{\text{EB}}=5\text{V}, I_{\text{C}}=0$			100	nA
Collector-Emitter Saturation Voltage	$V_{\text{CE(SAT)}}$	$I_{\text{C}}=100\text{mA}, I_{\text{B}}=10\text{mA}$		0.1	0.25	V
Base-Emitter Saturation Voltage	$V_{\text{BE(SAT)}}$	$I_{\text{C}}=100\text{mA}, I_{\text{B}}=10\text{mA}$			1.0	V
DC Current Gain	$h_{\text{FE1}}$	$V_{\text{CE}}=6\text{V}, I_{\text{C}}=2\text{mA}$	70		700	
	$h_{\text{FE2}}$	$V_{\text{CE}}=6\text{V}, I_{\text{C}}=150\text{mA}$	25			
Current Gain Bandwidth Product	$f_{\text{T}}$	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=50\text{mA}$	80			MHz
Output Capacitance	$C_{\text{ob}}$	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=0, f=1\text{MHz}$		2.0	3.0	pF

■ CLASSIFICATION OF  $h_{\text{FE1}}$

RANK	O	Y	GR	BL
RANGE	70~140	120~240	200~400	350~700

# ■ TYPICAL CHARACTERISTICS

Fig.1 Static characteristics

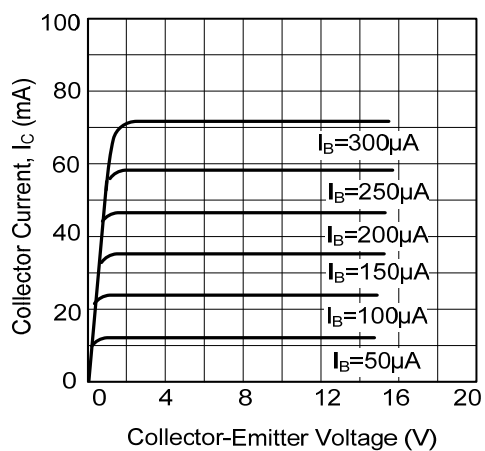


Fig.2 DC current Gain

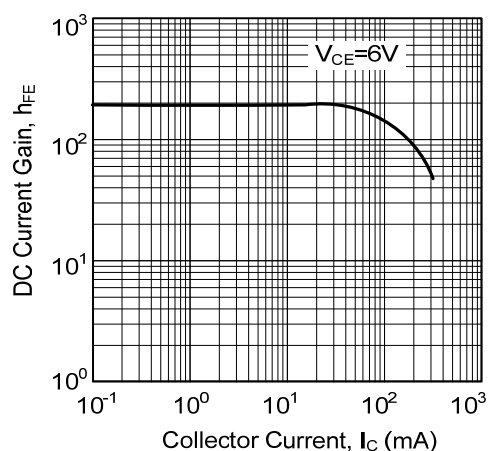


Fig.3 Base-Emitter on Voltage

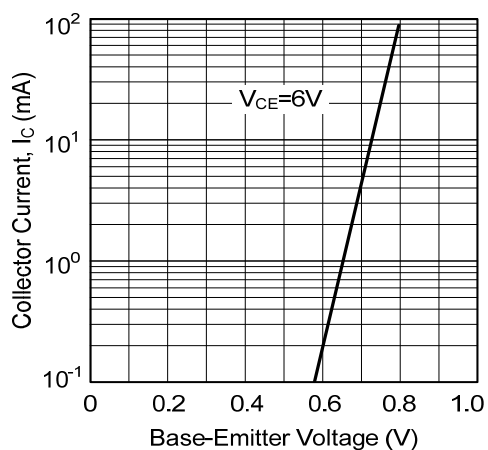


Fig.4 Saturation Voltage

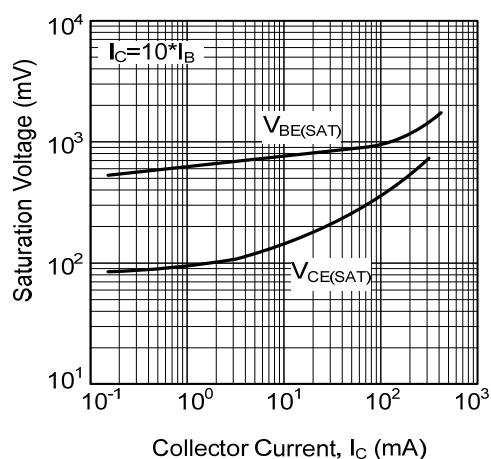


Fig.5 Current Gain-Bandwidth Product

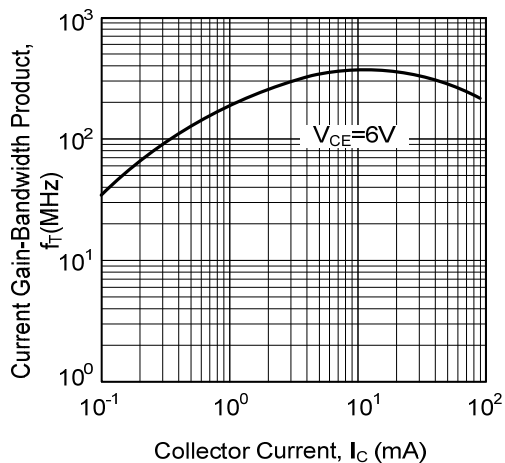
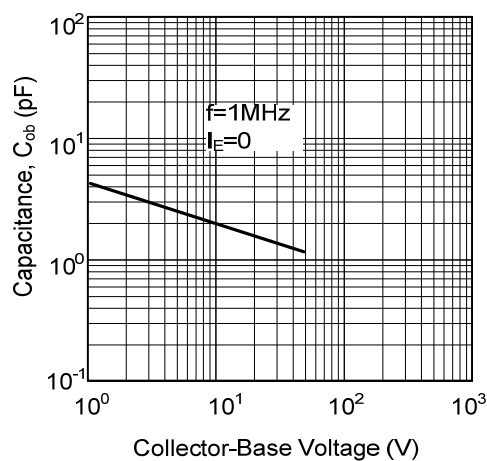
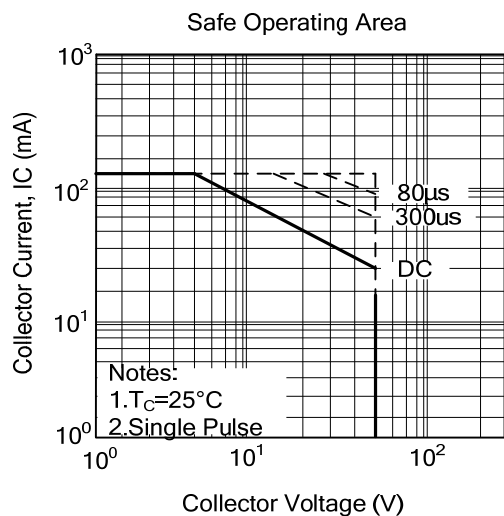


Fig.6 Collector Output Capacitance



## ■ TYPICAL CHARACTERISTICS(Cont.)



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