

# SS9011

**AM Converter, AM/FM IF Amplifier  
General Purpose Transistor**



## NPN Epitaxial Silicon Transistor

**Absolute Maximum Ratings**  $T_a=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Ratings	Units
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	30	A
$P_C$	Collector Power Dissipation	400	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

**Electrical Characteristics**  $T_a=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	50			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 1\text{mA}, I_B = 0$	30			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	5			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 50\text{V}, I_E = 0$			100	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			100	nA
$h_{FE}$	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	28	90	198	
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 1\text{mA}$		0.08	0.3	V
$V_{BE}(\text{on})$	Base-Emitter on Voltage	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	0.65	0.7	0.75	V
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0$ $f = 1\text{MHz}$	150	1.5 370		pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$		2.0		MHz
NF	Noise Figure	$V_{CE} = 5\text{V}, I_C = 1.0\text{mA}$ $f = 1\text{MHz}, R_S = 500\Omega$			4.0	dB

## $h_{FE}$ Classification

Classification	D	E	F	G	H	I
$h_{FE}$	28 ~ 45	39 ~ 60	54 ~ 80	72 ~ 108	97 ~ 146	132 ~ 198

## Typical Characteristics

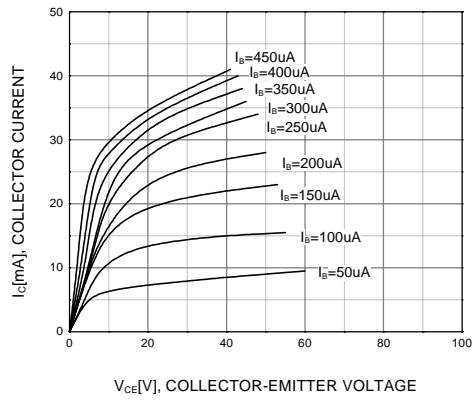


Figure 1. Static Characteristic

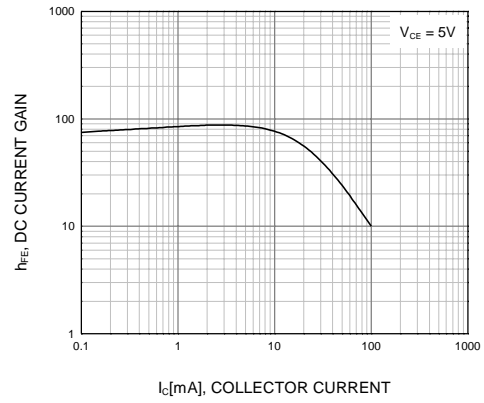


Figure 2. DC current Gain

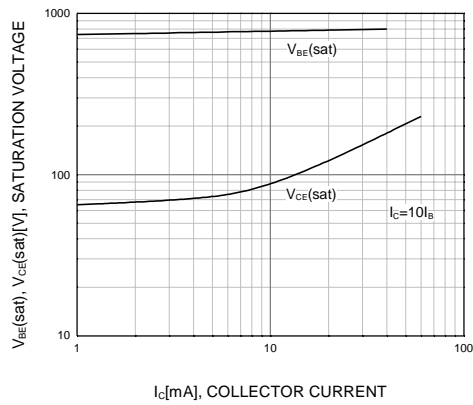


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

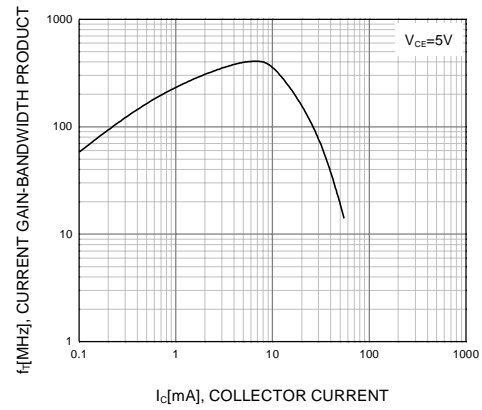
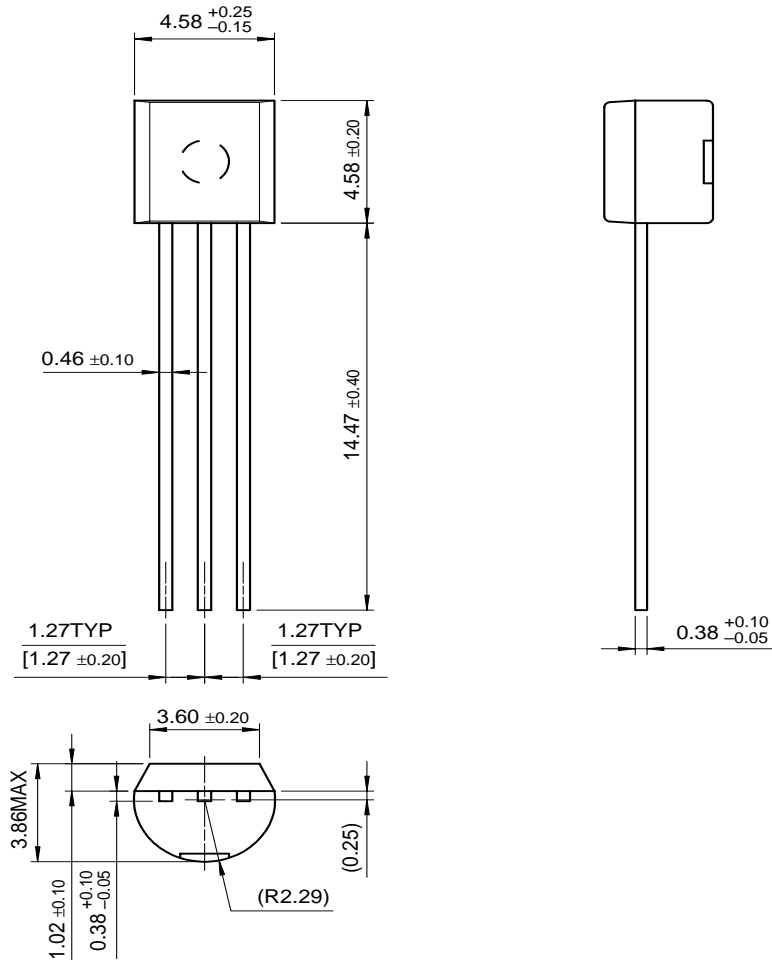


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## TO-92



Dimensions in Millimeters

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