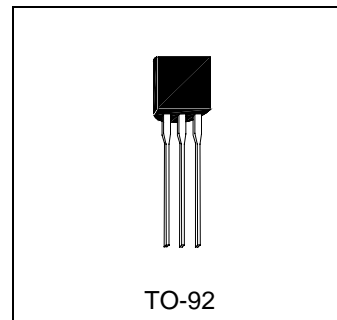




# HSC1815

NPN Epitaxial Planar Transistor



## Description

The HSC1815 is designed for use in driver stage of AF amplifier general purpose amplification.

## Absolute Maximum Ratings

- Maximum Temperatures
  - Storage Temperature..... -55 ~ +150 °C
  - Junction Temperature..... +150 °C Maximum
- Maximum Power Dissipation
  - Total Power Dissipation ( $T_A=25^\circ\text{C}$ )..... 400 mW
- Maximum Voltages and Currents ( $T_A=25^\circ\text{C}$ )
  - $V_{CB0}$  Collector to Base Voltage..... 60 V
  - $V_{CE0}$  Collector to Emitter Voltage..... 50 V
  - $V_{EB0}$  Emitter to Base Voltage..... 5 V
  - $I_C$  Collector Current..... 150 mA
  - $I_B$  Base Current..... 50 mA

## Electrical Characteristics ( $T_A=25^\circ\text{C}$ )

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CB0}$	60	-	-	V	$I_C=100\mu\text{A}$ , $I_E=0$
$BV_{CE0}$	50	-	-	V	$I_C=1\text{mA}$ , $I_B=0$
$BV_{EB0}$	5	-	-	V	$I_E=10\mu\text{A}$ , $I_C=0$
$I_{CB0}$	-	-	100	nA	$V_{CB}=60\text{V}$ , $I_E=0$
$I_{EB0}$	-	-	100	nA	$V_{EB}=5\text{V}$ , $I_C=0$
$*V_{CE(sat)}$	-	-	250	mV	$I_C=100\text{mA}$ , $I_B=10\text{mA}$
$*V_{BE(sat)}$	-	-	1	V	$I_C=100\text{mA}$ , $I_B=10\text{mA}$
$*h_{FE1}$	200	-	400		$V_{CE}=6\text{V}$ , $I_C=2\text{mA}$
$*h_{FE2}$	25	-	-		$V_{CE}=6\text{V}$ , $I_C=150\text{mA}$
$f_T$	80	-	-	MHz	$V_{CE}=10\text{V}$ , $I_C=1\text{mA}$ , $f=100\text{MHz}$
Cob	-	-	3.5	pF	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$ , $I_E=0$

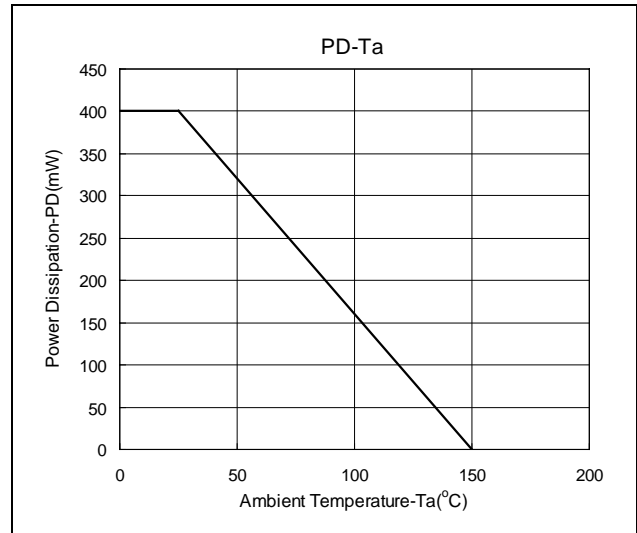
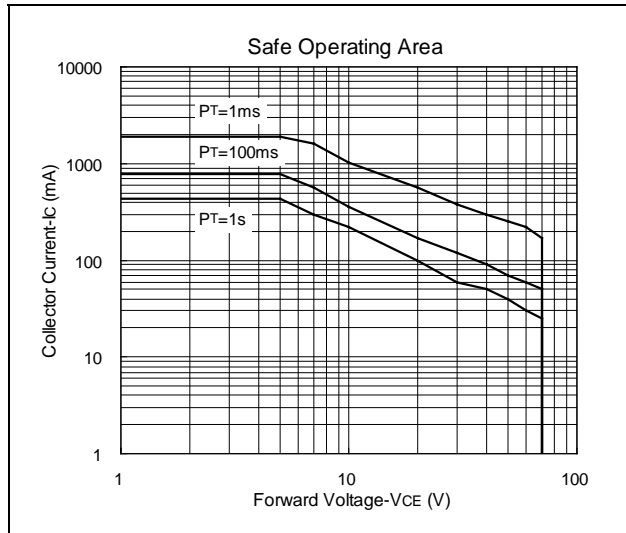
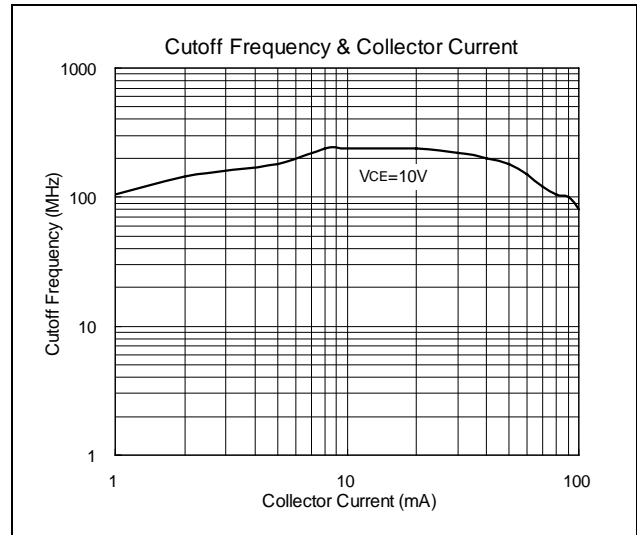
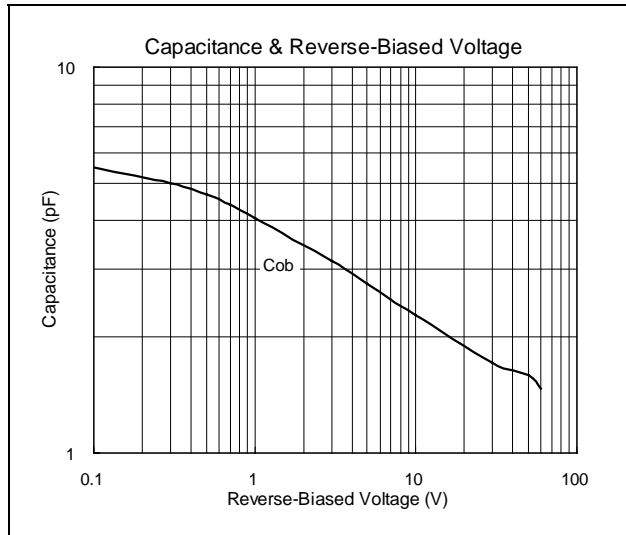
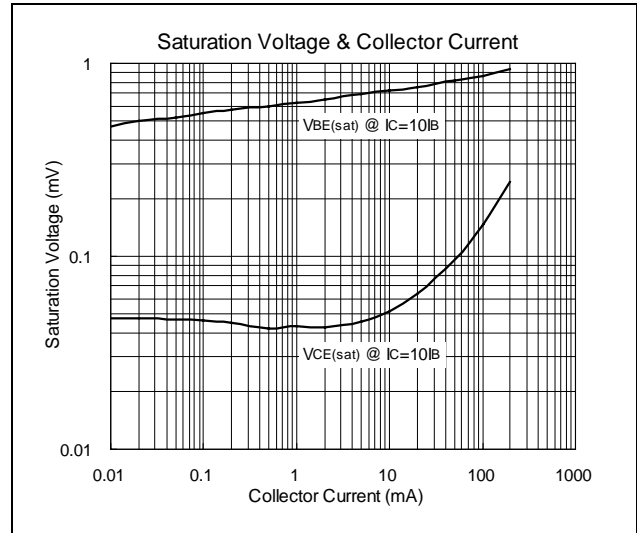
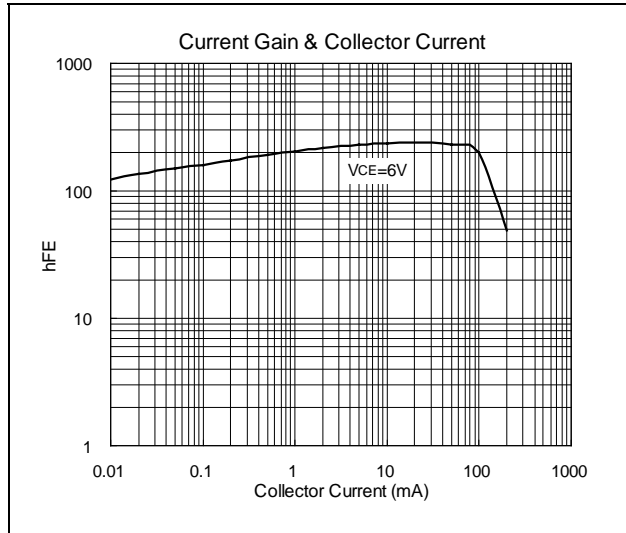
\*Pulse Test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$

## Classification of $h_{FE1}$

Rank	GR(G)
Range	200-400

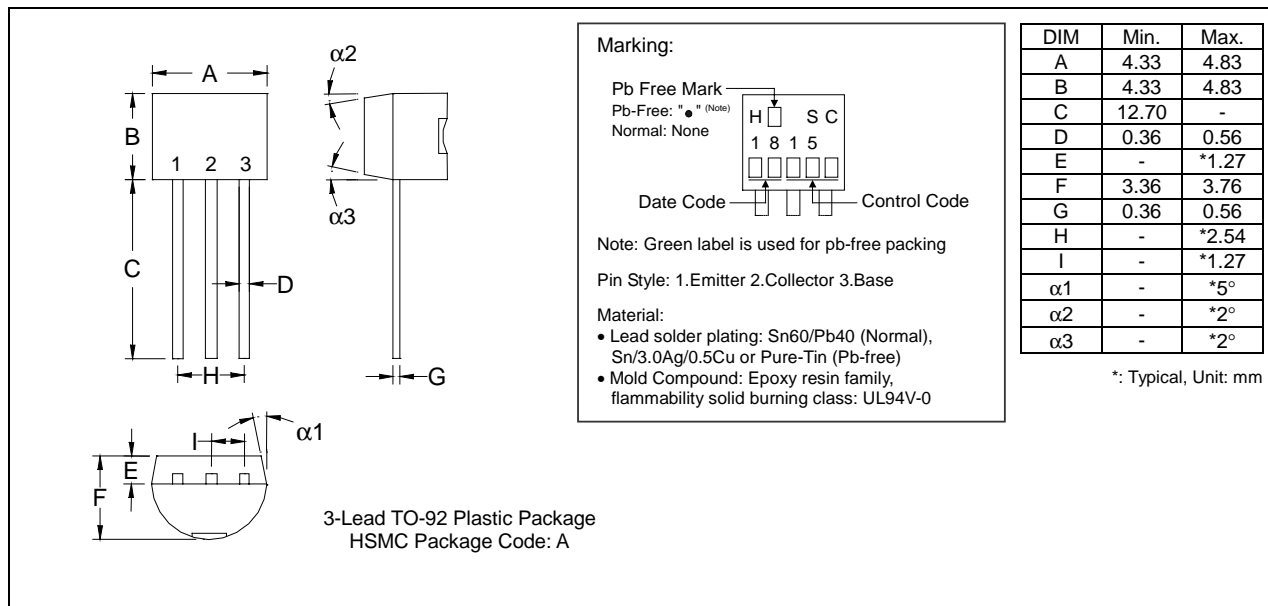


### Characteristics Curve

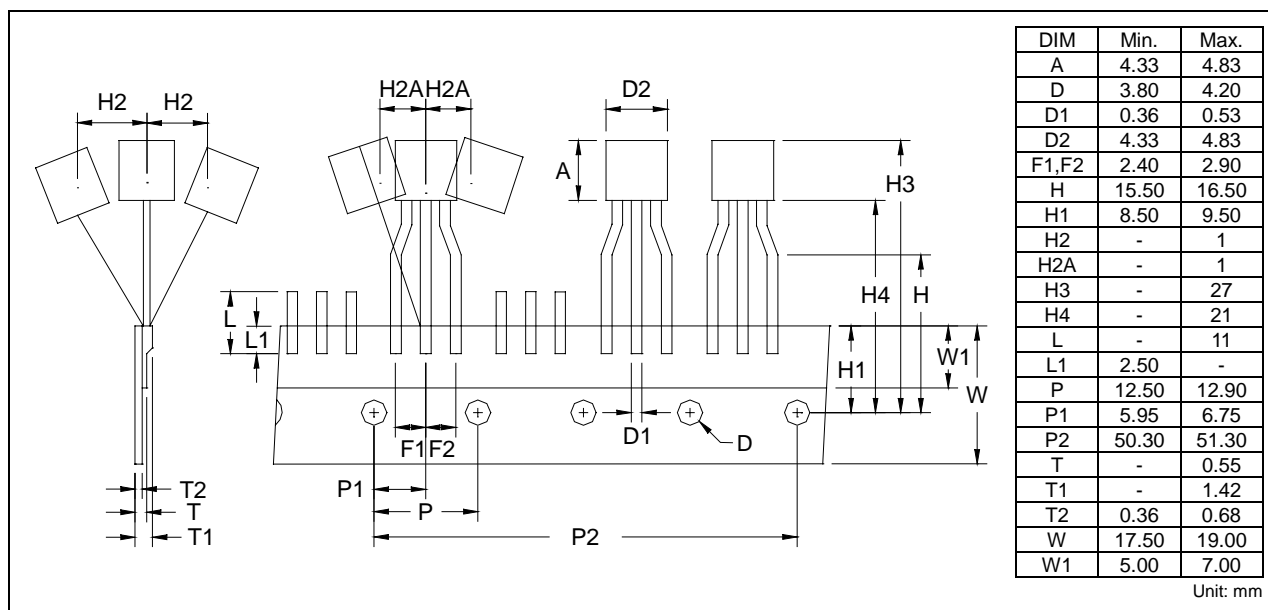




### TO-92 Dimension



### TO-92 Taping Dimension



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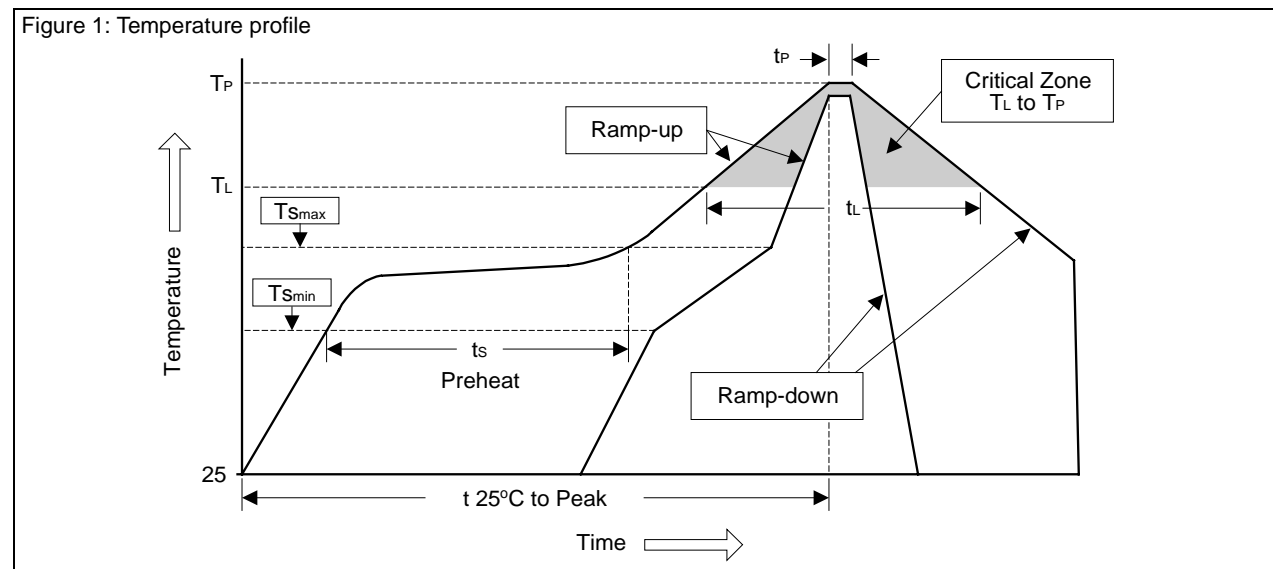
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 Tel: 886-3-5983621~5 Fax: 886-3-5982931



## Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2. Reflow soldering of surface-mount devices



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	<3°C/sec	<3°C/sec
Preheat		
- Temperature Min ( $T_{smin}$ )	100°C	150°C
- Temperature Max ( $T_{smax}$ )	150°C	200°C
- Time (min to max) ( $t_s$ )	60~120 sec	60~180 sec
$T_{smax}$ to $T_L$		
- Ramp-up Rate	<3°C/sec	<3°C/sec
Time maintained above:		
- Temperature ( $T_L$ )	183°C	217°C
- Time ( $t_L$ )	60~150 sec	60~150 sec
Peak Temperature ( $T_P$ )	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature ( $t_p$ )	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	10sec ±1sec
Pb-Free devices.	260°C ±5°C	10sec ±1sec