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ON Semiconductor®

# FFB5551 Dual-Chip NPN General-Purpose Amplifier

## Features

- This device is designed for general-purpose high voltage amplifier.
- E1 is Pin 1.

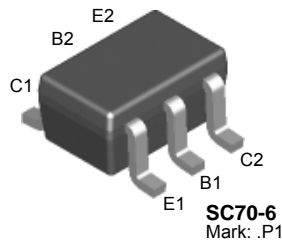


Figure 1. Device Package

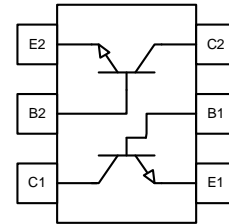


Figure 2. Internal Connection

## Ordering Information

Part Number	Top Mark	Package	Packing Method
FFB5551	P1	SC70 6L	Tape and Reel

## Absolute Maximum Ratings<sup>(1),(2)</sup>

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	160	V
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{EBO}$	Emitter-Base Voltage	6.0	V
$I_C$	Collector Current - Continuous	200	mA
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to 150	$^\circ\text{C}$

### Notes:

1. These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
2. These are steady-state limits. ON Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

### Thermal Characteristics<sup>(3)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Max.	Unit
$P_D$	Total Device Dissipation	200	mW
	Derate Above $25^\circ\text{C}$	1.6	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	625	$^\circ\text{C}/\text{W}$

**Note:**

3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

### Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$BV_{CEO}$	Collector-Emitter Breakdown Voltage <sup>(4)</sup>	$I_C = 1.0 \text{ mA}, I_B = 0$	160		V
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	180		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	6.0		V
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 120 \text{ V}, I_E = 0$		50	nA
		$V_{CB} = 120 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$		50	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 4.0 \text{ V}, I_C = 0$		50	nA
$h_{FE}$	DC Current Gain <sup>(4)</sup>	$V_{CE} = 5 \text{ V}, I_C = 1.0 \text{ mA}$	80		
		$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$	80	250	
		$V_{CE} = 5 \text{ V}, I_C = 50 \text{ mA}$	30		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage <sup>(4)</sup>	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$		0.15	V
		$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.20	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage <sup>(4)</sup>	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$		1.0	V
		$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		1.0	
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 100 \text{ MHz}$	100	300	MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		6.0	pF

**Note:**

4. Pulse test: pulse width  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

## Typical Performance Characteristics

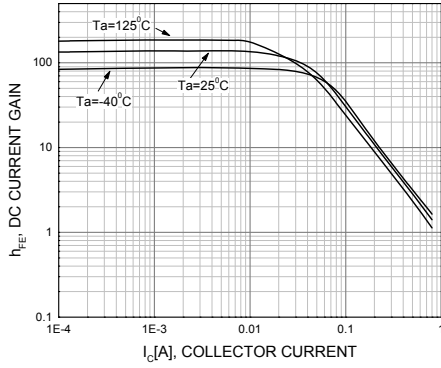


Figure 3. DC Current Gain

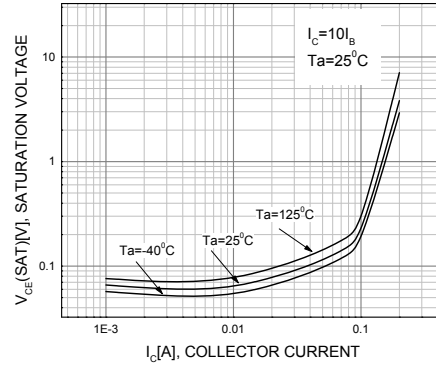


Figure 4. Collector-Emitter Saturation Voltage

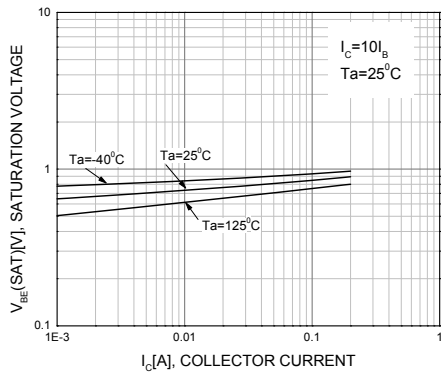


Figure 5. Base-Emitter Saturation Voltage

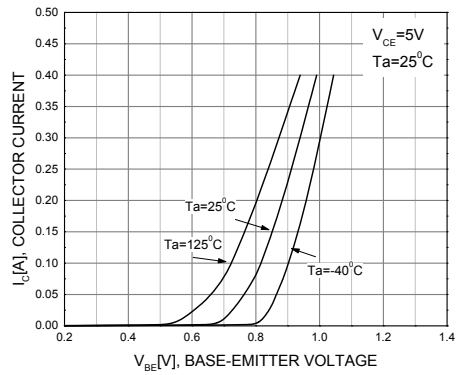


Figure 6. Base-Emitter On Voltage

Physical Dimensions

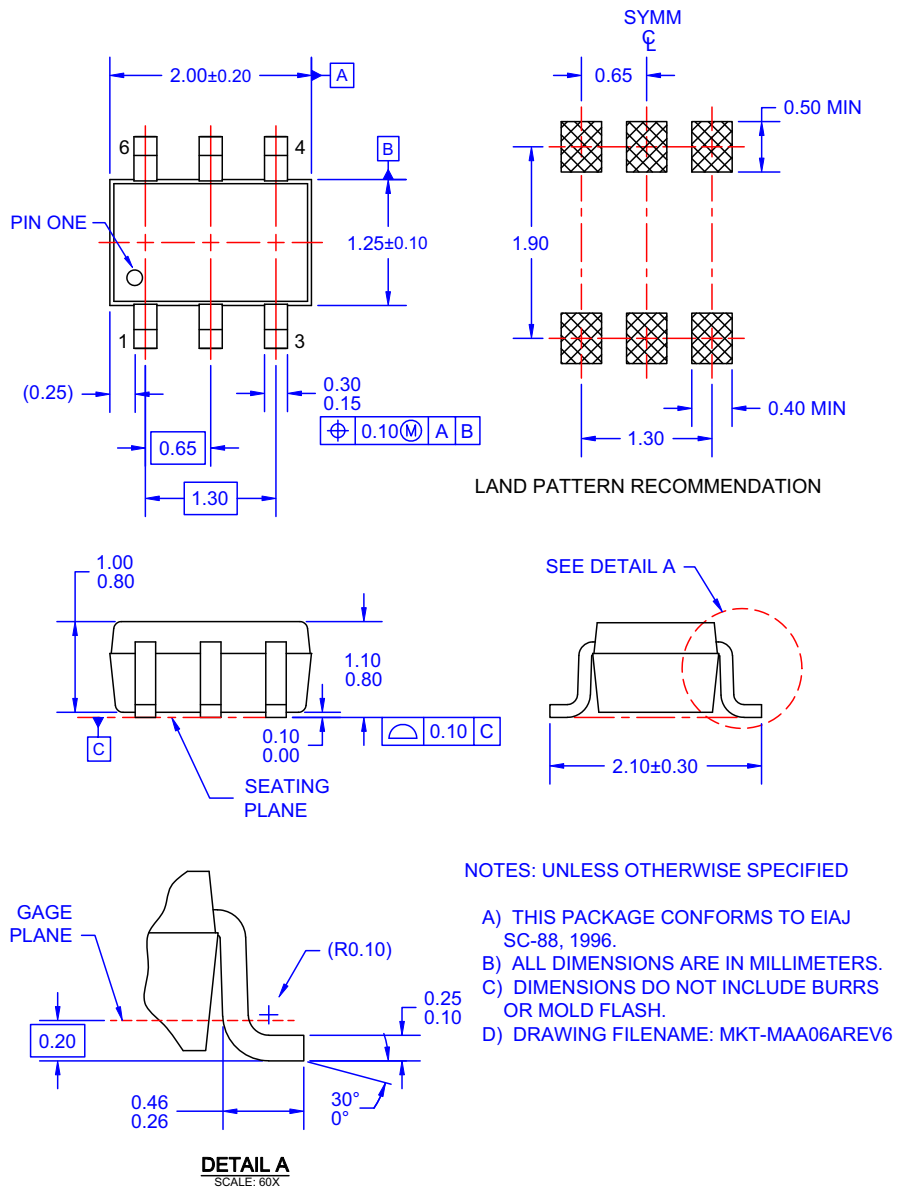


Figure 7. 6-LEAD, SC70, EIAJ SC-88, 1.25 MM WIDE

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