

### Features

- ◎ 50MHz - 3 GHz
- ◎ +20 dBm P<sub>1dB</sub> at 1 GHz
- ◎ +36dBm OIP3 at 1 GHz
- ◎ 20dB Gain at 1GHz
- ◎ 2.8 dB Noise Figure at 2GHz
- ◎ SOT – 89 Package Style

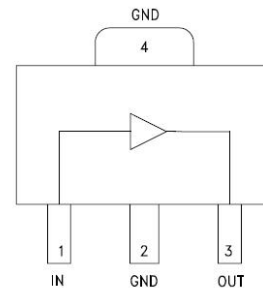
### Description

The *F850* is a general-purpose buffer amplifier that offers high dynamic range in a low-cost surface-mount package. at 50MHz, the *F850* typically provides 21 dB of gain, +38 dBm Output IP3, and +21dBm P<sub>1dB</sub>. The *F850* consists of Darlington pair amplifiers using the high reliability InGaP/GaAs HBT process technology and only requires DC-blocking capacitors, a bias resistor, and an inductive RF choke for operation.

### Applications

- ◎ Mobile Infrastructure
- ◎ CATV / FTTH
- ◎ W-LAN / ISM
- ◎ RFID
- ◎ WiMAX/WiBro

### Functional Diagram



MARK \*\*850

### Electrical Characteristics ( $V_{CC} = 5V$ , $T_A = +25^\circ C$ , $75\Omega$ )

| Parameter                                             | Min.         | Typ. | Max. | Units |    |
|-------------------------------------------------------|--------------|------|------|-------|----|
| Gain                                                  | 50MHz~500MHz | 20.5 | 21.0 | dB    |    |
|                                                       | 50MHz~3GHz   | 18.0 | 18.5 |       |    |
| Input return Loss                                     | 50MHz ~3 GHz | 10   | 12   | dB    |    |
| Output return Loss                                    | 50MHz ~3 GHz | 10   | 12   | dB    |    |
| Output Power for 1 dB Compression (P <sub>1dB</sub> ) | 50MHz~500MHz | 20.5 | 21.0 | dBm   |    |
|                                                       | 500MHz~3GHz  | 19.6 | 20.0 |       |    |
| Output Third Order Intercept (IP3)                    | 50MHz~500MHz | 37.2 | 38   | dBm   |    |
|                                                       | 500MHz~3GHz  | 36.2 | 37   |       |    |
| Noise Figure                                          | 50MHz~3GHz   |      | 2.8  | 3.4   | dB |
| Device Voltage                                        |              |      | 5.0  | 5.5   | V  |
| Supply Current                                        |              | 72   | 82   |       | mA |

### Absolute Maximum Ratings

|                       |               |
|-----------------------|---------------|
| Device Current        | 110mA         |
| Storage Temperature   | -65 to +150°C |
| Operating Temperature | -55 to +125°C |
| ESD Sensitivity (HBM) | Class 1A      |



**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**

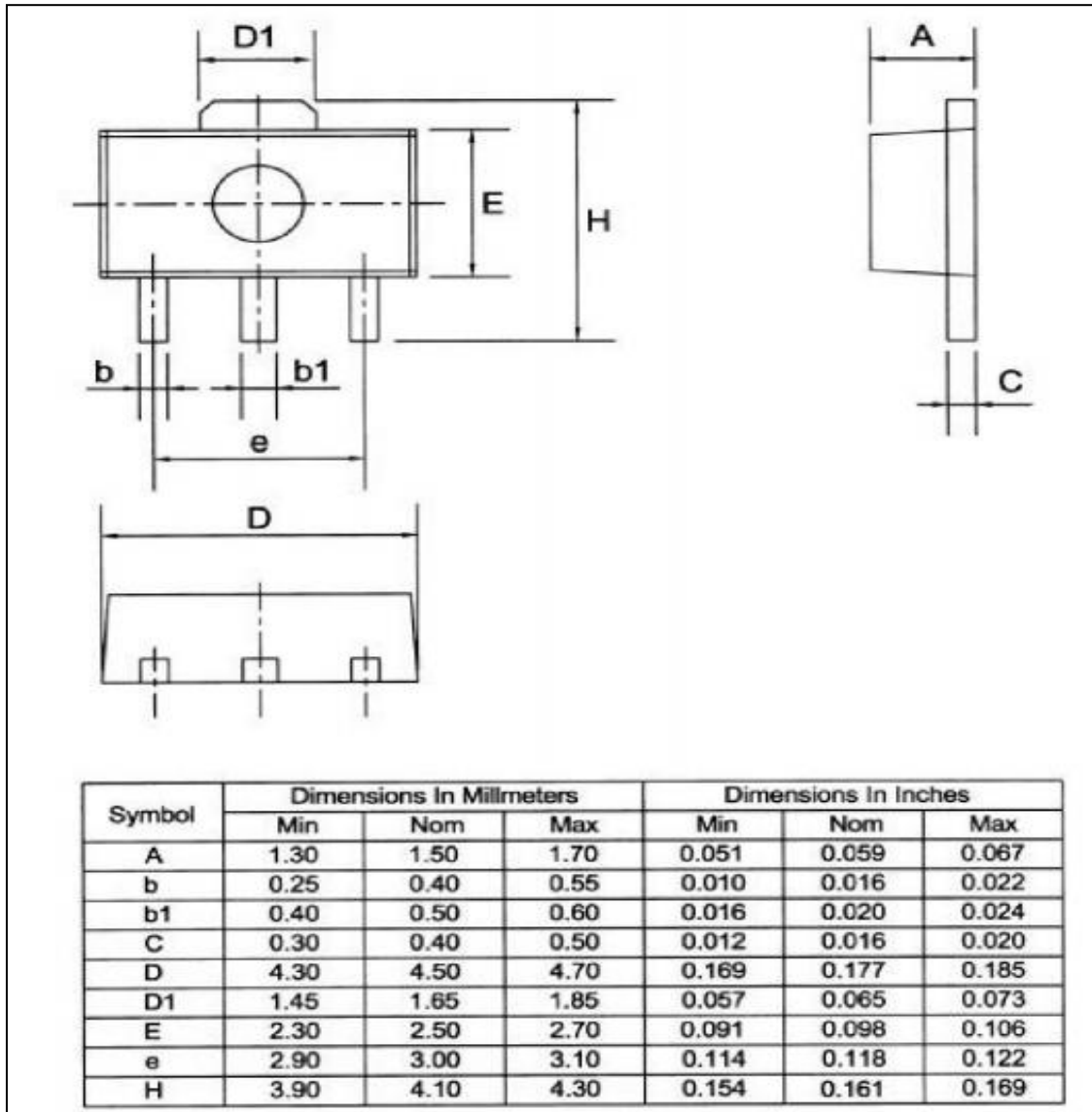
ESD Rating: Class 1A

Value: Passes between 1500 and 2000V

Test: Human Body Model (HBM)

Standard: JEDEC Standard JESD22-A114

### Outline Drawing



**Pin Descriptions**

| Pin number | Function          | Description                                                            |
|------------|-------------------|------------------------------------------------------------------------|
| 1          | RF <sub>IN</sub>  | This pin is DC coupled; An off chip DC blocking capacitor is required. |
| 2, 4       | GND               | These pins and package bottom must be connected to RF/DC ground.       |
| 3          | RF <sub>OUT</sub> | RF output and DC Bias for the output stage.                            |

**Application Circuit**

