# WPT2E33

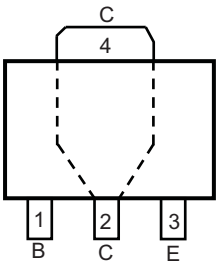
**Single, PNP, -30V, -3A, Power Transistor**

**Http//:www.willsemi.com**

## Descriptions

The WPT2E33 is PNP bipolar power transistor with very low saturation voltage. This device is suitable for use in charging circuit and other power management. Standard Product WPT2E33 is Pb-free.

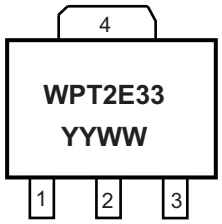
**SOT-89-3L**




**Pin configuration (Top view)**

## Features

- Ultra low collector-to-emitter saturation voltage
- High DC current gain >100
- 3A continue collector current
- Small package SOT-89-3L.




**WPT2E33 = Device code**
**YY = Year**
**WW = Week**
**Marking**

## Applications

- Charging circuit
- Power regulator
- Other power management in portable equipments

## Order information

| Device | Package | Shipping |
|---|---|---|
| WPT2E33-3/TR | SOT-89-3L | 1000/Reel&Tape |

## Absolute maximum ratings

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-emitter voltage | $V_{CEO}$ | -30 | V |
| Collector-base voltage | $V_{CBO}$ | -30 | V |
| Emitter-base voltage | $V_{EBO}$ | -6 | V |
| Continues collector current [a] | $I_C$ | -3 | A |
| Continues collector current [b] | | -2 | A |
| Pulse collector current [c] | $I_{CM}$ | -6 | A |
| Power dissipation [a] | $P_D$ | 3.0 | W |
| Power dissipation [b] | | 1.5 | W |
| Junction Temperature | $T_J$ | 150 | °C |
| Lead Temperature | $T_L$ | 260 | °C |
| Storage Temperature Range | $T_{stg}$ | -55~155 | °C |

a Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

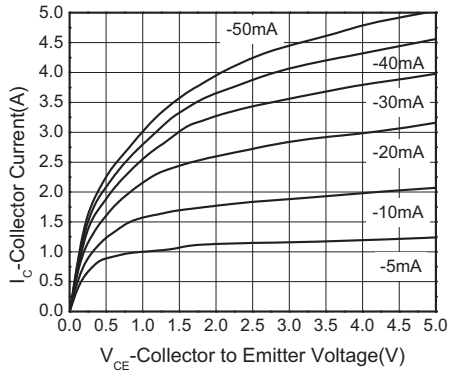
b Surface mounted on FR-4 board using minimum pad size, 1oz copper

c Pulse width=300μs, Duty Cycle<2%

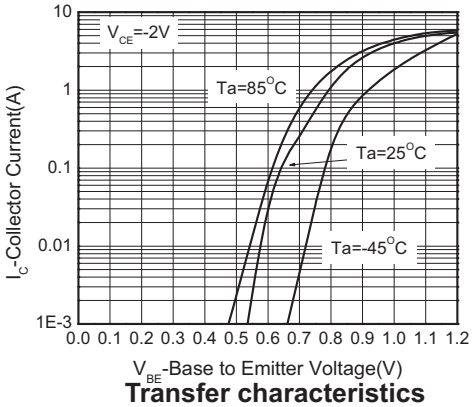
## Electronics Characteristics (Ta=25°C, unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector-emitter breakdown voltage | $BV_{CEO}$ | $I_C$=-10mA, $I_B$=0mA | -30 | | | V |
| Collector-base breakdown voltage | $BV_{CBO}$ | $I_C$=-1mA, $I_E$=0mA | -30 | | | V |
| Emitter-base breakdown voltage | $BV_{EBO}$ | $I_E$=-100uA, $I_C$=0mA | -6 | | | V |
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$=-30V | | | -100 | nA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$=-5V | | | -100 | nA |
| Collector-emitter saturation voltage [c] | $V_{CE(sat)}$ | $I_C$=-2A, $I_B$=-200mA | | -0.2 | -0.4 | V |
| Base-emitter saturation voltage [c] | $V_{BE(sat)}$ | $I_C$=-2A, $I_B$=-200mA | | -1.0 | -1.5 | V |
| Base-emitter forward voltage | $V_{BE(on)}$ | $I_C$=-0.5A, $V_{CE}$=-2V | | -0.7 | -1.0 | V |
| DC current gain [c] | $h_{FE}$ | IC=-1A , VCE=-2V | 100 | | 300 | |

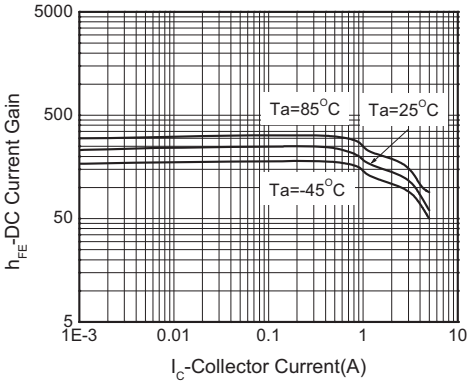
## Typical Characteristics (Ta=25°C, unless otherwise noted)



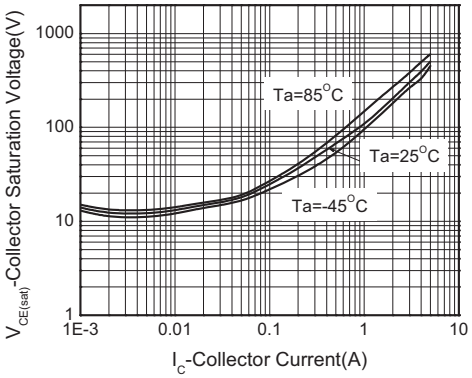

**Output characteristics**



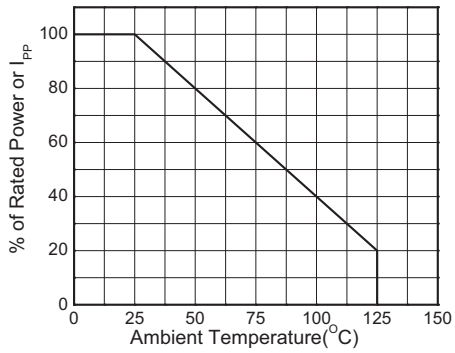

**Transfer characteristics**



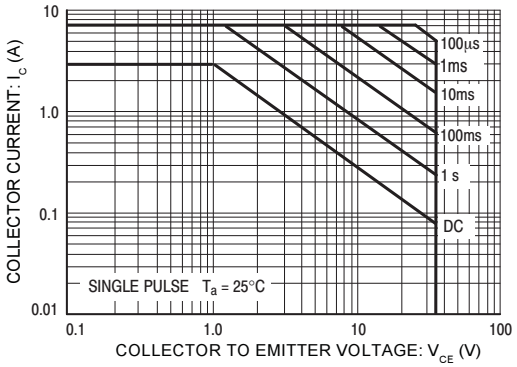

**DC current gain**



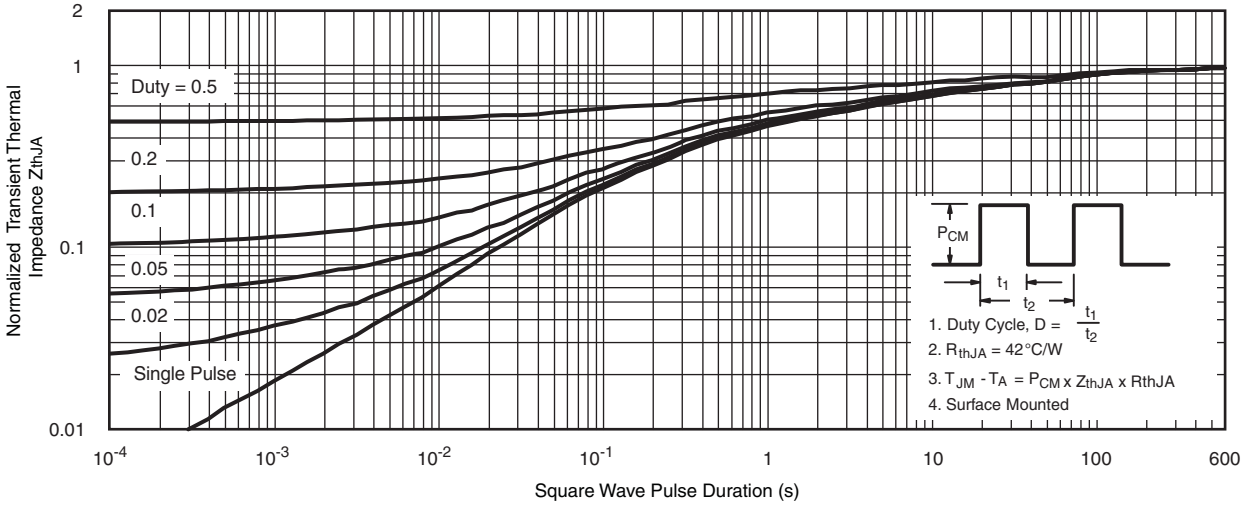

**C-E saturation voltage vs. Collector current**




**Power Derating**



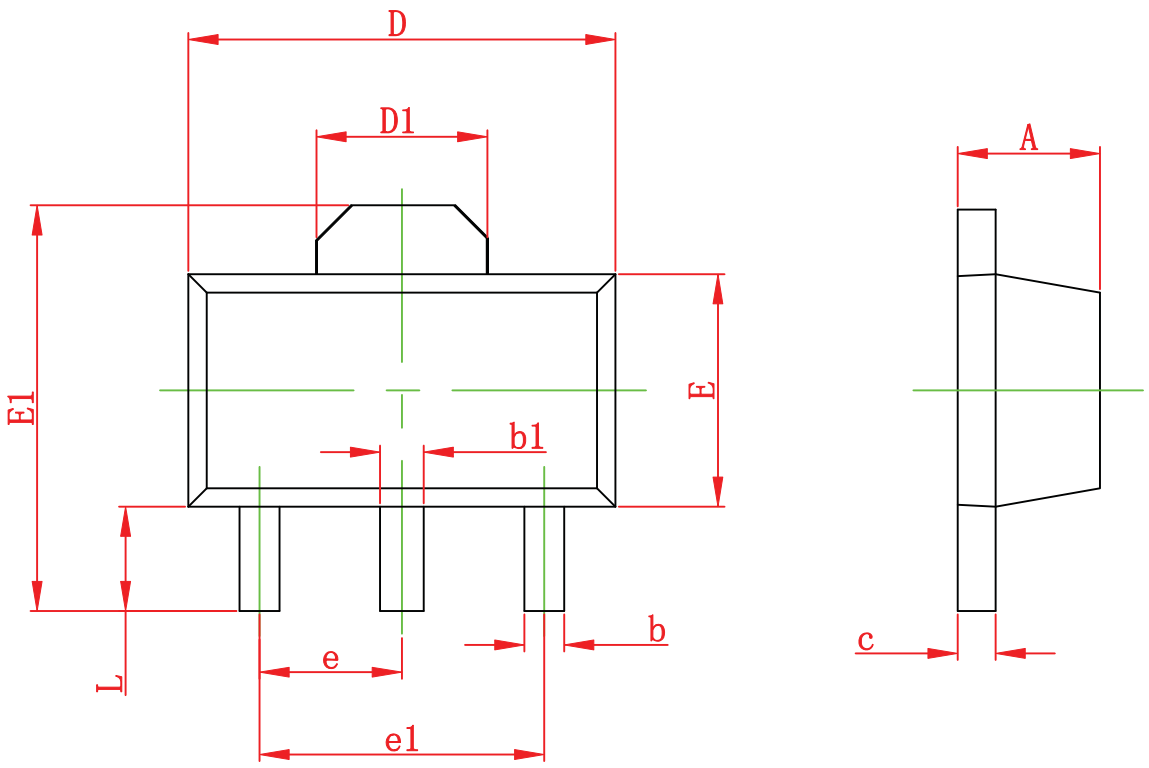

**Safe operating area**




**Transient thermal response (Junction-to-Ambient)**

## Package outline dimensions

### SOT-89-3L




| Symbol | Dimensions in Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 1.400 | 1.600 |
| b | 0.320 | 0.520 |
| b1 | 0.400 | 0.580 |
| c | 0.350 | 0.440 |
| D | 4.400 | 4.600 |
| D1 | 1.550 Ref. | |
| E | 2.300 | 2.600 |
| E1 | 3.940 | 4.250 |
| e | 1.500 Typ. | |
| e1 | 3.000 Typ. | |
| L | 0.900 | 1.200 |