SGS-THOMSON MICROELECTRONICS

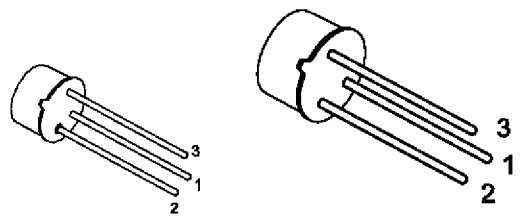
# 2N2905
# 2N2907

## GENERAL PURPOSE AMPLIFIERS AND SWITCHES

### DESCRIPTION

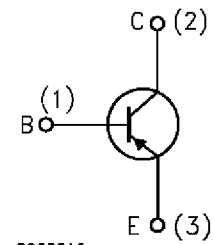
The 2N2905 and 2N2907 are silicon planar epitaxial PNP transistors in Jedec TO-39 (for 2N2905) and in Jedec TO-18 (for 2N2907) metal case. They are designed for high speed saturated switching and general purpose application.

2N2905 approved to CECC 50002-102, 2N2907 approved to CECC 50002-103 available on request.




**TO-18** **TO-39**

**INTERNAL SCHEMATIC DIAGRAM**




### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage ($I_E$ = 0) | -60 | V |
| $V_{CEO}$ | Collector-Emitter Voltage ($I_B$ = 0) | -40 | V |
| $V_{EBO}$ | Emitter-Base Voltage ($I_C$ = 0) | -5 | V |
| $I_C$ | Collector Current | -0.6 | A |
| $P_{tot}$ | Total Dissipation at $T_{amb} \leq 25\ ^oC$ | | |
| | for **2N2905** | 0.6 | W |
| | for **2N2907** | 0.4 | W |
| | at $T_{case} \leq 25\ ^oC$ | | |
| | for **2N2905** | 3 | W |
| | for **2N2907** | 1.8 | W |
| $T_{stg}$ | Storage Temperature | -65 to 200 | $^oC$ |
| $T_j$ | Max. Operating Junction Temperature | 200 | $^oC$ |

## THERMAL DATA

| | | TO-39 | TO-18 | |
|---|---|---|---|---|
| $R_{thj\text{-}case}$ | Thermal Resistance Junction-Case Max | 58.3 | 97.3 | °C/W |
| $R_{thj\text{-}amb}$ | Thermal Resistance Junction-Ambient Max | 292 | 437.5 | °C/W |

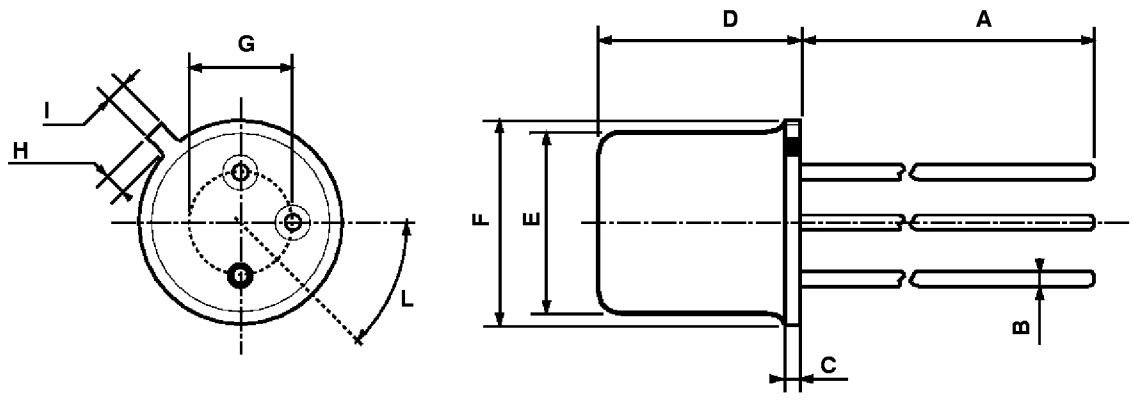
## ELECTRICAL CHARACTERISTICS ($T_{case}$ = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CBO}$ | Collector Cut-off Current ($I_E$ = 0) | $V_{CB}$ = -50 V<br>$V_{CB}$ = -50 V $T_{case}$ = 150 °C | | | -20<br>-20 | nA<br>µA |
| $I_{CEX}$ | Collector Cut-off Current ($V_{BE}$ = -0.5V) | $V_{CE}$ = -30 V | | | -50 | nA |
| $I_{BEX}$ | Base Cut-off Current ($V_{BE}$ = -0.5V) | $V_{CE}$ = -30 V | | | -50 | nA |
| $V_{(BR)CBO}$* | Collector-Base Breakdown Voltage ($I_E$ = 0) | $I_C$ = -10 µA | -60 | | | V |
| $V_{(BR)CEO}$* | Collector-Emitter Breakdown Voltage ($I_B$ = 0) | $I_C$ = -10 mA | -40 | | | V |
| $V_{(BR)EBO}$* | Emitter-Base Breakdown Voltage ($I_C$ = 0) | $I_E$ = -10 µA | -5 | | | V |
| $V_{CE(sat)}$* | Collector-Emitter Saturation Voltage | $I_C$ = -150 mA $I_B$ = -15 mA<br>$I_C$ = -500 mA $I_B$ = -50 mA | | | -0.4<br>-1.6 | V<br>V |
| $V_{BE(sat)}$* | Base-Emitter Saturation Voltage | $I_C$ = -150 mA $I_B$ = -15 mA<br>$I_C$ = -500 mA $I_B$ = -50 mA | | | -1.3<br>-2.6 | V<br>V |
| $h_{FE}$* | DC Current Gain | $I_C$ = -0.1 mA $V_{CE}$ = -10 V<br>$I_C$ = -1 mA $V_{CE}$ = -10 V<br>$I_C$ = -10 mA $V_{CE}$ = -10 V<br>$I_C$ = -150 mA $V_{CE}$ = -10 V<br>$I_C$ = -500 mA $V_{CE}$ = -10 V | 35<br>50<br>75<br>100<br>30 | | <br><br><br>300<br> | |
| $f_T$ | Transition Frequency | $V_{CE}$ = -20 V f = 100 MHz<br>$I_C$ = -50 mA | 200 | | | MHz |
| $C_{EBO}$ | Emitter Base Capacitance | $I_C$ = 0 $V_{EB}$ = -2 V f = 1MHz | | | 30 | pF |
| $C_{CBO}$ | Collector Base Capacitance | $I_E$ = 0 $V_{CB}$ = -10 V f = 1MHz | | | 8 | pF |
| $t_d$ | Delay Time | $V_{CC}$ = -30 V $I_C$ = -150 mA<br>$I_{B1}$ = -15 mA | | | 10 | ns |
| $t_r$ | Rise Time | $V_{CC}$ = -30 V $I_C$ = -150 mA<br>$I_{B1}$ = -15 mA | | | 40 | ns |
| $t_s$ | Storage Time | $V_{CC}$ = -6 V $I_C$ = -150 mA<br>$I_{B1}$ = $-I_{B2}$ = -15 mA | | | 80 | ns |
| $t_f$ | Fall Time | $V_{CC}$ = -6 V $I_C$ = -150 mA<br>$I_{B1}$ = $-I_{B2}$ = -15 mA | | | 30 | ns |

* Pulsed: Pulse duration = 300 µs, duty cycle ≤ 1 %

## TO-18 MECHANICAL DATA

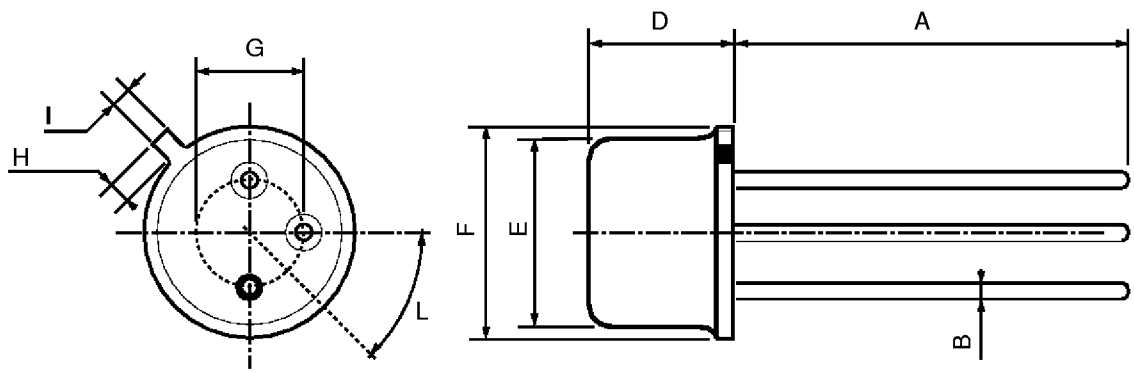
| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | 12.7 | | | 0.500 | |
| B | | | 0.49 | | | 0.019 |
| D | | | 5.3 | | | 0.208 |
| E | | | 4.9 | | | 0.193 |
| F | | | 5.8 | | | 0.228 |
| G | 2.54 | | | 0.100 | | |
| H | | | 1.2 | | | 0.047 |
| I | | | 1.16 | | | 0.045 |
| L | 45° | | | 45° | | |




0016043

## TO-39 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 12.7 | | | 0.500 | | |
| B | | | 0.49 | | | 0.019 |
| D | | | 6.6 | | | 0.260 |
| E | | | 8.5 | | | 0.334 |
| F | | | 9.4 | | | 0.370 |
| G | 5.08 | | | 0.200 | | |
| H | | | 1.2 | | | 0.047 |
| I | | | 0.9 | | | 0.035 |
| L | $45^{o}$ (typ.) | | | | | |




P008B

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

# Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

### Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

**www.entegreci.com**

### Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

**Kategorilere göz atın**

### Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

**Üreticileri görün**

### Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

**Teklif isteyin**

**www.entegreci.com** | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.