



Micro Commercial Components

Micro Commercial Components  
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**TPT5609**

## Features

- Excellent linearity of Current Gain
- Low saturation voltage

## Maximum Ratings

| Symbol    | Rating                      | Rating      | Unit |
|-----------|-----------------------------|-------------|------|
| $V_{CEO}$ | Collector-Emitter Voltage   | 20          | V    |
| $V_{CBO}$ | Collector-Base Voltage      | 25          | V    |
| $V_{EBO}$ | Emitter-Base Voltage        | 5.0         | V    |
| $I_C$     | Collector Current           | 1.0         | A    |
| $P_C$     | Collector power dissipation | 0.75        | W    |
| $T_J$     | Junction Temperature        | -55 to +150 | °C   |
| $T_{STG}$ | Storage Temperature         | -55 to +150 | °C   |

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Typ | Max | Units |
|--------|-----------|-----|-----|-----|-------|
|--------|-----------|-----|-----|-----|-------|

### OFF CHARACTERISTICS

|            |                                                                 |     |     |     |         |
|------------|-----------------------------------------------------------------|-----|-----|-----|---------|
| $BV_{CBO}$ | Collector-Base Breakdown Voltage<br>( $I_C=10\mu A$ , $I_E=0$ ) | 25  | --- | --- | Vdc     |
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage<br>( $I_C=1mA$ , $I_B=0$ )  | 20  | --- | --- | Vdc     |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage<br>( $I_E=10\mu A$ , $I_C=0$ )   | 5.0 | --- | --- | Vdc     |
| $I_{CBO}$  | Collector Cutoff Current<br>( $V_{CB}=20V$ , $I_E=0$ )          | --- | --- | 1   | $\mu A$ |
| $I_{EBO}$  | Emitter Cutoff Current<br>( $V_{EB}=5.0V$ , $I_C=0$ )           | --- | --- | 1   | $\mu A$ |

### ON CHARACTERISTICS

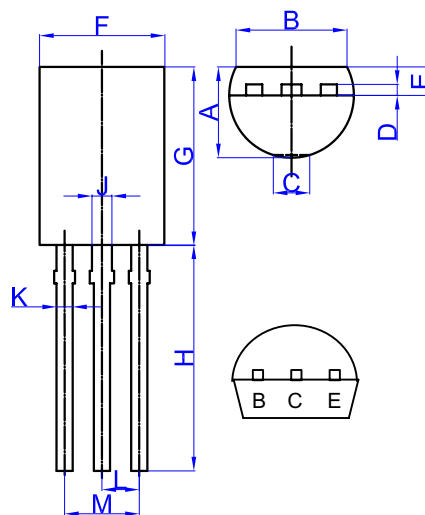
|               |                                                                      |     |     |     |     |
|---------------|----------------------------------------------------------------------|-----|-----|-----|-----|
| $h_{FE}$      | DC Current gain<br>( $I_C=500mA$ , $V_{CE}=2.0V$ )                   | 60  | --- | 240 | --- |
| $V_{BE(on)}$  | Base-Emitter On Voltage<br>( $V_{CE}=2.0V$ , $I_C=500mA$ )           | --- | --- | 1.0 | Vdc |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C=800mA$ , $I_B=80mA$ ) | --- | --- | 0.5 | Vdc |
| $f_T$         | Current Gain Bandwidth Product<br>( $V_{CE}=2.0V$ , $I_C=500mA$ )    | --- | 190 | --- | MHz |
| $C_{ob}$      | Output Capacitance<br>( $V_{CB}=10V$ , $I_E=0$ , $f=1.0MHz$ )        | --- | 22  | --- | pF  |

### CLASSIFICATION OF $h_{FE}$

| Rank  | A      | B      | C       |
|-------|--------|--------|---------|
| Range | 60-120 | 85-170 | 120-240 |

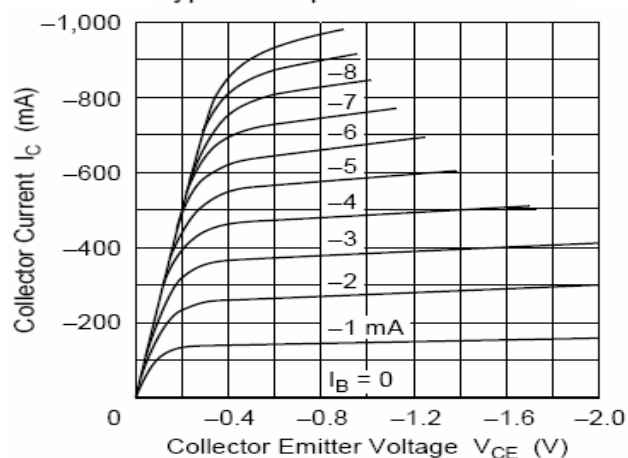
## NPN Epitaxial Silicon Transistor

TO-92L

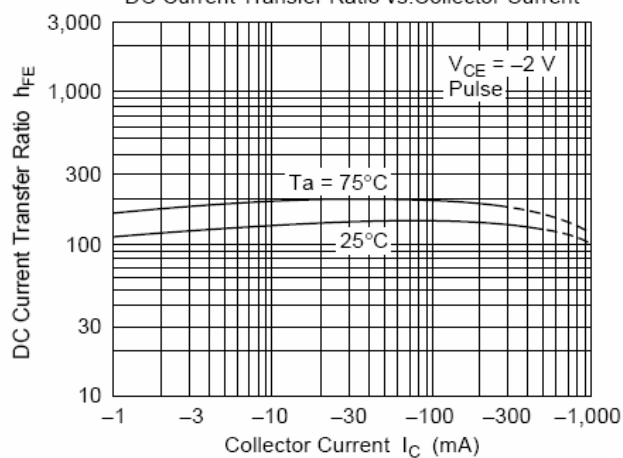


| DIM | INCHES |       | MM    |       | NOTE |
|-----|--------|-------|-------|-------|------|
|     | MIN    | MAX   | MIN   | MAX   |      |
| A   | 3.700  | 4.100 | .146  | .161  |      |
| B   | 4.000  | ---   | .157  | ---   |      |
| C   | 0.000  | 0.300 | 0.000 | 0.012 |      |
| D   | 0.350  | 0.450 | .014  | .018  |      |
| E   | 1.280  | 1.580 | .050  | .062  |      |
| F   | 4.700  | 5.100 | .185  | .201  |      |
| G   | 7.800  | 8.200 | .307  | .323  |      |
| H   | 13.80  | 14.20 | .543  | .569  |      |
| J   | .600   | .800  | .024  | .031  |      |
| K   | 0.350  | .550  | .014  | .022  |      |
| L   | 1.270  |       | .050  |       |      |
| M   | 2.440  | 2.640 | .096  | .104  |      |

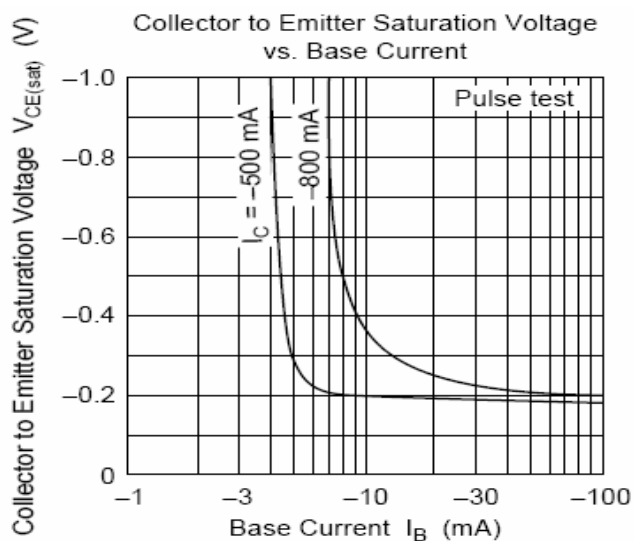
Typical Output Characteristics



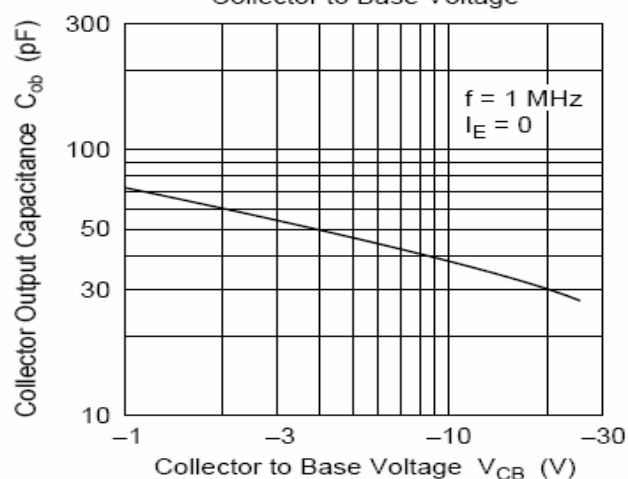
DC Current Transfer Ratio vs. Collector Current



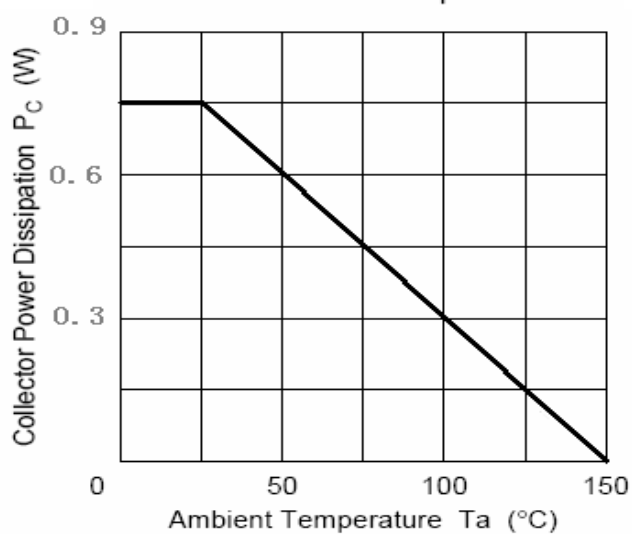
Collector to Emitter Saturation Voltage vs. Base Current



Collector Output Capacitance vs. Collector to Base Voltage



Maximum Collector Dissipation Curve



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