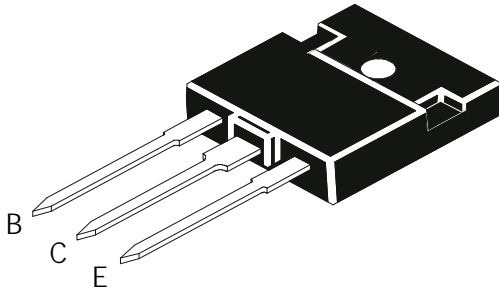


SILICON PLANAR DARLINGTON POWER TRANSISTORS

TIP140F, 141F, 142F NPN
TIP145F, 146F, 147F PNP



**TO- 3P Fully Isolated
Plastic Package**

For use in Power Linear and Switching Applications

ABSOLUTE MAXIMUM RATINGS

| DESCRIPTION | SYMBOL | TIP140F TIP145F | TIP141F TIP146F | TIP142F TIP147F | UNIT |
|---|----------------|--------------------|--------------------|--------------------|------------------|
| Collector-Base Voltage | V_{CBO} | 60 | 80 | 100 | V |
| Collector-Emitter Voltage | V_{CEO} | 60 | 80 | 100 | V |
| Emitter-Base Voltage | V_{EBO} | 5.0 | | | V |
| Collector Current | I_C | 10 | | | A |
| Collector Peak Current (repetitive) | I_{CM} | 20 | | | A |
| Base Current | I_B | 0.5 | | | A |
| Total Power Dissipation @ $T_c \leq 25^\circ\text{C}$ | P_D | 60 | | | W |
| Operating And Storage Junction Temperature Range | T_j, T_{stg} | - 65 to +150 | | | $^\circ\text{C}$ |

THERMAL RESISTANCE

| | | | |
|-----------------------|---------------|-----|--------------------|
| From Junction to case | $R_{th(j-c)}$ | 1.0 | $^\circ\text{C/W}$ |
|-----------------------|---------------|-----|--------------------|

ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|--------------------------------------|-----------------|---|-----------------|-----|------------|-------------|
| Collector Cutoff Current | I_{CBO} | $V_{CB} = \text{Rated } V_{CBO}, I_E = 0$ | | | 1.0 | mA |
| Collector Cutoff Current | I_{CEO} | $V_{CE} = 1/2 \text{ rated } V_{CEO}, I_B = 0$ | | | 2.0 | mA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 5.0 \text{ V}, I_C = 0$ | | | 2.0 | mA |
| Collector-Emitter Sustaining Voltage | $*V_{CEO(sus)}$ | $I_C = 30\text{mA}, I_B = 0$ TIP140F/145F TIP141F/146F TIP142F/147F | 60 80 100 | | | V V V |
| Collector-Emitter Saturation Voltage | $*V_{CE(sat)}$ | $I_C = 5\text{A}, I_B = 10\text{mA}$ $I_C = 10\text{A}, I_B = 40\text{mA}$ | | | 2.0 3.0 | V V |
| Base-Emitter On Voltage | $*V_{BE(on)}$ | $I_C = 10\text{A}, V_{CE} = 4 \text{ V}$ | | | 3.0 | V |
| DC Current Gain | $*h_{FE}$ | $I_C = 5\text{A}, V_{CE} = 4\text{V}$ $I_C = 10\text{A}, V_{CE} = 4 \text{ V}$ | 1000 500 | | | |

SWITCHING TIME

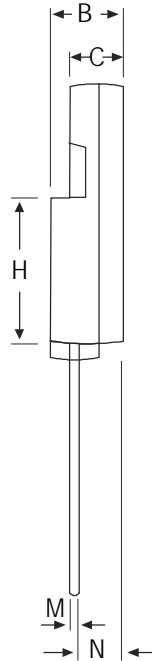
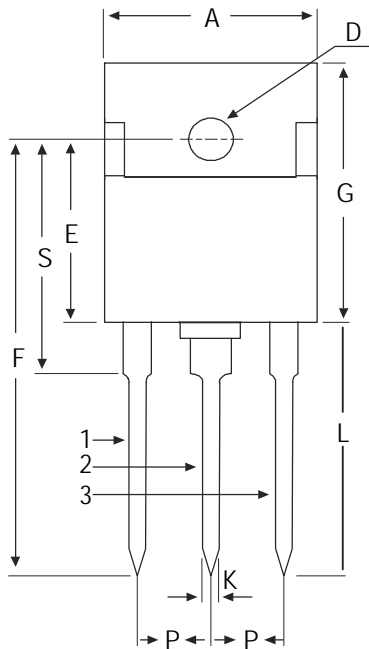
| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---------------|-----------|--|-----|-----|-----|---------------|
| Turn on time | t_{on} | $I_C = 10\text{A}, I_{B1} = 40\text{mA}, I_{B2} = -40\text{mA}, R_L = 3\Omega$ | | 0.9 | | μs |
| Turn off time | t_{off} | | | 4.0 | | μs |

*Pulsed : Pulse duration=200ms, duty cycle=1.5%

TIP140F, 141F, 142F NPN
TIP145F, 146F, 147F PNP

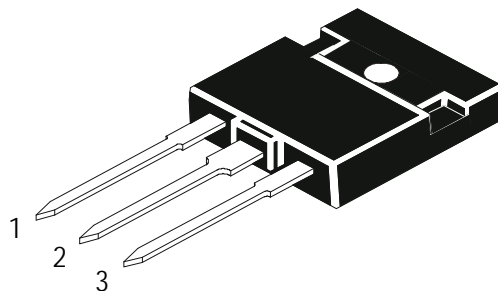
TO- 3P Fully Isolated
Plastic Package

TO-3P (TO-218) Plastic Package



| DIM | MIN | MAX |
|-----|--------|--------|
| A | 15.80 | 16.40 |
| B | 5.20 | 5.70 |
| C | 3.80 | 4.20 |
| D | Ø 3.30 | Ø 3.60 |
| E | 14.50 | 15.10 |
| F | 33.25 | 36.75 |
| G | 20.75 | 21.25 |
| H | 11.50 | 12.25 |
| K | 1.00 | 1.30 |
| L | 18.75 | 21.65 |
| M | 0.40 | 0.60 |
| N | 3.15 | 3.45 |
| P | 5.21 | 5.72 |
| S | 18.75 | 19.25 |

All diminsions in mm.



Pin Configuration

1. Base
2. Collector
3. Emitter

Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|---------|-----------------|----------------|------------------|------|-------------------|------|--------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-3P | 100 pcs/polybag | 628 gm/100 pcs | 3" x 7.5" x 7.5" | 0.3K | 17" x 15" x 13.5" | 4.8K | 42 kgs |