Transys Electronics LIMITED

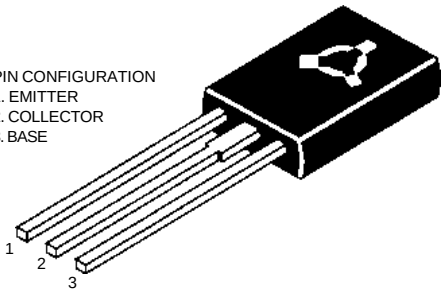
**TO-126 (SOT-32) Plastic Package** **MJE270, MJE271**

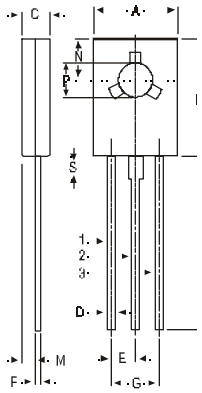
*MJE270* *NPN PLASTIC POWER TRANSISTOR*

*MJE271* *PNP PLASTIC POWER TRANSISTOR*

*Medium Power* ***Darlingtons*** *for Linear and Switching Applications*

PIN CONFIGURATION
1. EMITTER
2. COLLECTOR
3. BASE




| DIM | MIN. | MAX. |
|---|---|---|
| A | 7.4 | 7.8 |
| B | 10.5 | 10.8 |
| C | 2.4 | 2.7 |
| D | 0.7 | 0.9 |
| E | 2.25 TYP. | |
| F | 0.49 | 0.75 |
| G | 4.5 TYP. | |
| L | 15.7 TYP. | |
| M | 1.27 TYP. | |
| N | 3.75 TYP. | |
| P | 3.0 | 3.2 |
| S | 2.5 TYP. | |

ALL DIMENSIONS IN MM

***ABSOLUTE MAXIMUM RATINGS***

| | | | |
|---|---|---|---|
| *Collector-base voltage (open emitter)* | $V_{CBO}$ | *max.* | *100 V* |
| *Collector-emitter voltage (open base)* | $V_{CEO}$ | *max.* | *100 V* |
| *Collector current* | $I_C$ | *max.* | *2.0 A* |
| *Total power dissipation up to $T_C$ = 25°C* | $P_{tot}$ | *max.* | *15 W* |
| *Junction temperature* | $T_j$ | *max.* | *150 °C* |
| *Collector-emitter saturation voltage* | | | |
| *$I_C$ = 20 mA; $I_B$ = 0.2 mA* | $V_{CEsat}$ | *max.* | *2.0 V* |
| *D.C. current gain* | | | |
| *$I_C$ = 20 mA; $V_{CE}$ = 3 V* | $h_{FE}$ | *min.* | *500* |

***RATINGS*** *(at $T_A$=25°C unless otherwise specified)*

*Limiting values*

| | | | |
|---|---|---|---|
| *Collector-base voltage (open emitter)* | $V_{CBO}$ | *max.* | *100 V* |
| *Collector-emitter voltage (open base)* | $V_{CEO}$ | *max.* | *100 V* |

| | | | |
|---|---|---|---|
| *Emitter-base voltage (open collector)* | $V_{EBO}$ | *max.* | *5.0 V* |
| *Collector current* | $I_C$ | *max.* | *2.0 A* |
| *Collector current (peak)* | $I_C$ | *max.* | *4.0 A* |
| *Base current* | $I_B$ | *max.* | *0.1 A* |
| *Total power dissipation up to $T_C$ = 25°C* | $P_{tot}$ | *max.* | *15 W* |
| *Derate above 25°C* | | *max.* | *0.12 W/°C* |
| *Total power dissipation up to $T_A$ = 25°C* | $P_{tot}$ | *max.* | *1.5 W* |
| *Derate above 25°C* | | *max.* | *0.012 W/°C* |
| *Junction temperature* | $T_j$ | *max.* | *150 °C* |
| *Storage temperature* | $T_{stg}$ | *–65 to +150* | *°C* |

***THERMAL RESISTANCE***

| | | |
|---|---|---|
| *From junction to case* | $R_{th\ j-c}$ | *8.33 °C/W* |
| *From junction to ambient* | $R_{th\ j-a}$ | *83.3 °C/W* |

***CHARACTERISTICS***

*$T_{amb}$ = 25°C unless otherwise specified*

| | | | |
|---|---|---|---|
| *Collector cutoff current* | | | |
| *$I_E$ = 0; $V_{CB}$ = 100 V* | $I_{CBO}$ | *max.* | *0.3 mA* |
| *$I_B$ = 0; $V_{CE}$ = 100 V* | $I_{CEO}$ | *max.* | *1.0 mA* |
| *Emitter cut-off current* | | | |
| *$I_C$ = 0; $V_{EB}$ = 5 V* | $I_{EBO}$ | *max.* | *0.1 mA* |
| *Breakdown voltages* | | | |
| *$I_C$ = 10 mA; $I_B$ = 0* | $V_{CEO(sus)}$* | *min.* | *100 V* |
| *$I_C$ = 1 mA; $I_E$ = 0* | $V_{CBO}$ | *min.* | *100 V* |
| *$I_E$ = 1 mA; $I_C$ = 0* | $V_{EBO}$ | *min.* | *5 V* |
| *Saturation voltages* | | | |
| *$I_C$ = 20 mA; $I_B$ = 0.2 mA* | $V_{CEsat}$* | *max.* | *2.0 V* |
| *$I_C$ = 120 mA; $I_B$ = 1.2 mA* | $V_{CEsat}$* | *max.* | *3.0 V* |
| *Base emitter on voltage* | | | |
| *$I_C$ = 120 mA; $V_{CE}$ = 10V* | $V_{BE(on)}$* | *max.* | *2.0 V* |
| *D.C. current gain* | | | |
| *$I_C$ = 20 mA; $V_{CE}$ = 3 V* | $h_{FE}$* | *min.* | *500* |
| *$I_C$ = 120 mA; $V_{CE}$ = 10 V* | $h_{FE}$* | *min.* | *1500* |
| *Transition frequency f = 1 MHz* | | | |
| *$I_C$ = 0.05 A; $V_{CE}$ = 5 V* | $f_{T(1)}$ | *min.* | *6.0 MHz* |
| *Second Breakdown Collector* | | | |
| *Current with base Forward Biased* | | | |
| *$V_{CE}$ = 40V; t = 1.0s; (non-repetitive)* | $I_{S/b}$ | *min.* | *375 mA* |

*(1) $f_T = |h_{fe}| \cdot f_{test}$*

** Pulse test: pulse width ≤ 300 µs; duty cycle ≤ 2%.*