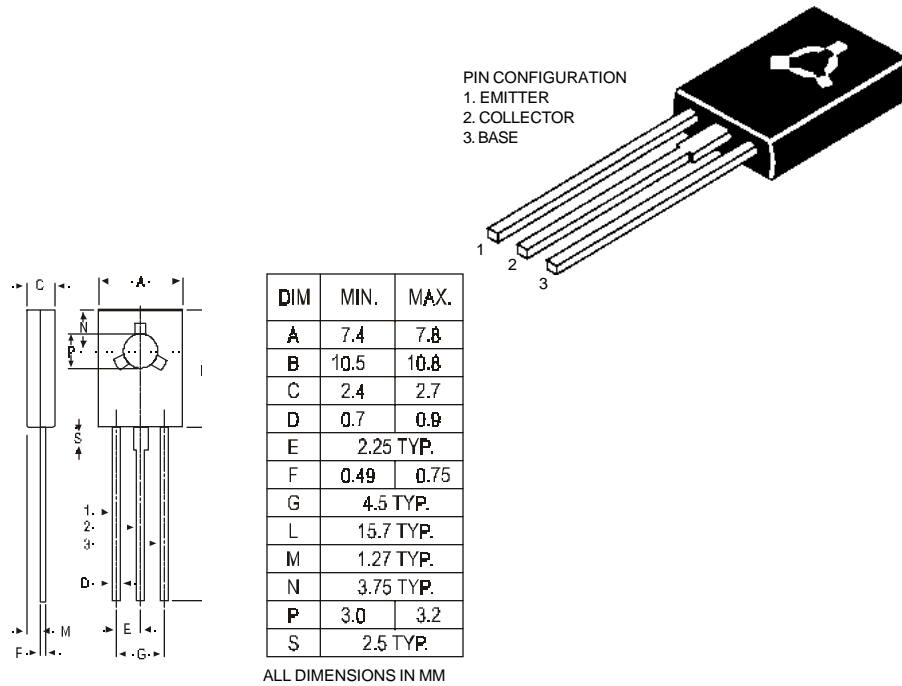




MJE270 *NPN PLASTIC POWER TRANSISTOR*
MJE271 *PNP PLASTIC POWER TRANSISTOR*
 Medium Power **Darlington** for Linear and Switching Applications



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 $T_C = 25^\circ\text{C}$	P_{tot}	max.	15 W
Junction temperature	T_j	max.	150 °C
Collector-emitter saturation voltage $I_C = 20 \text{ mA}; I_B = 0.2 \text{ mA}$	V_{CEsat}	max.	2.0 V
D.C. current gain $I_C = 20 \text{ mA}; V_{CE} = 3 \text{ V}$	h_{FE}	min.	500

RATINGS (at $T_A=25^\circ\text{C}$ unless otherwise specified)

<i>Limiting values</i>			
Collector-base voltage (open emitter)	V_{CBO}	max.	100 V
Collector-emitter voltage (open base)	V_{CEO}	max.	100 V

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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 $T_C = 25^\circ\text{C}$	P_{tot}	max.	15 W
Derate above 25°C		max.	0.12 W°C
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	max.	1.5 W
Derate above 25°C		max.	0.012 W°C
Junction temperature	T_j	max.	150 $^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150 $^\circ\text{C}$

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	8.33 $^\circ\text{C/W}$
From junction to ambient	$R_{th\ j-a}$	83.3 $^\circ\text{C/W}$

CHARACTERISTICS

$T_{amb} = 25^\circ\text{C}$ unless otherwise specified

Collector cutoff current			
$I_E = 0; V_{CB} = 100\text{ V}$	I_{CBO}	max.	0.3 mA
$I_B = 0; V_{CE} = 100\text{ V}$	I_{CEO}	max.	1.0 mA
Emitter cut-off current			
$I_C = 0; V_{EB} = 5\text{ V}$	I_{EBO}	max.	0.1 mA
Breakdown voltages			
$I_C = 10\text{ mA}; I_B = 0$	$V_{CEO(sus)}^*$	min.	100 V
$I_C = 1\text{ mA}; I_E = 0$	V_{CB0}	min.	100 V
$I_E = 1\text{ mA}; I_C = 0$	V_{EBO}	min.	5 V
Saturation voltages			
$I_C = 20\text{ mA}; I_B = 0.2\text{ mA}$	V_{CEsat}^*	max.	2.0 V
$I_C = 120\text{ mA}; I_B = 1.2\text{ mA}$	V_{CEsat}^*	max.	3.0 V
Base emitter on voltage			
$I_C = 120\text{ mA}; V_{CE} = 10\text{ V}$	$V_{BE(on)}^*$	max.	2.0 V
D.C. current gain			
$I_C = 20\text{ mA}; V_{CE} = 3\text{ V}$	h_{FE}^*	min.	500
$I_C = 120\text{ mA}; V_{CE} = 10\text{ V}$	h_{FE}^*	min.	1500
Transition frequency $f = 1\text{ MHz}$			
$I_C = 0.05\text{ A}; V_{CE} = 5\text{ V}$	$f_T(1)$	min.	6.0 MHz
Second Breakdown Collector Current with base Forward Biased			
$V_{CE} = 40\text{ V}; t = 1.0\text{ s};$ (non-repetitive)	$I_{S/b}$	min.	375 mA

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

* Pulse test: pulse width $\leq 300\ \mu\text{s}$; duty cycle $\leq 2\%$.