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## MJE182 Silicon NPN Transistor High Current Switch TO-126LP Type Package

**Features:**

- High Current Gain–Bandwidth Product
- High DC Current Gain
- Fast Switching Time

**Absolute Maximum Ratings:**

Collector Base Voltage, $V_{CB}$ .....	100V
Collector Emitter Voltage, $V_{CEO}$ .....	80V
Emitter Base Voltage, $V_{EB}$ .....	7V
Base Current, $I_B$ .....	1A
Collector Current, $I_C$	
Continuous .....	3A
Peak .....	6A
Total Device Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	12.5W
Derate Above $25^\circ\text{C}$ .....	0.012W/ $^\circ\text{C}$
Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	1.5W
Derate Above $25^\circ\text{C}$ .....	0.1W/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	10 $^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Ambient, $R_{thJA}$ .....	83.4 $^\circ\text{C}/\text{W}$

**Electrical Characteristics:** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$V_{EB} = 4V, I_C = 0$	–	–	1.0	$\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 100V, I_E = 0$	–	–	0.1	$\mu\text{A}$
		$V_{CB} = 100V, I_E = 0, T_C = 150^\circ\text{C}$	–	–	0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$	–	–	1.0	$\mu\text{A}$
<b>On Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 1V, I_C = 100\text{mA}$	50	–	250	
		$V_{CE} = 1V, I_C = 500\text{mA}$	30	–	–	
		$V_{CE} = 1V, I_C = 1.5A$	12	–	–	

**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	0.3	V
		$I_C = 1.5\text{A}, I_B = 150\text{mA}$	-	-	0.9	V
		$I_C = 3\text{A}, I_B = 600\text{mA}$	-	-	1.7	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1.5\text{A}, I_B = 150\text{mA}$	-	-	1.5	V
		$I_C = 3\text{A}, I_B = 600\text{mA}$	-	-	2.0	V
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C = 50\text{mA}, V_C = 1\text{V}$	-	-	1.2	V
<b>Dynamic Characteristics</b>						
Current-Gain - Bandwidth Product	$f_T$	$V_{CE} = 10\text{V}, I_C = 500\text{mA}, f_{test} = 10\text{MHz}$	50	-	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	-	-	40	pF

