

# MJ410, MJ411

## NPN POWER TRANSISTORS

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

### MAXIMUM RATINGS

Characteristic	Symbol	MJ410	MJ411	Unit
Collector-Emitter Voltage	$V_{CE0}$	200	300	V
Collector-Emitter Voltage	$V_{CBO}$	200	300	V
Emitter-Base Voltage	$V_{EBO}$	5.0		V
Collector Current – continuous	$I_C$	5.0		A
Peak	$I_{CM}$	10		A
Base Current -continuous	$I_B$	2.0		A
Total Power Dissipation @ $T_C = 75^\circ\text{C}$	$P_D$	100		W
Derate Above $25^\circ\text{C}$		1.33		W/ $^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-65 to +150		$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +200		$^\circ\text{C}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.75		$^\circ\text{C}/\text{W}$

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

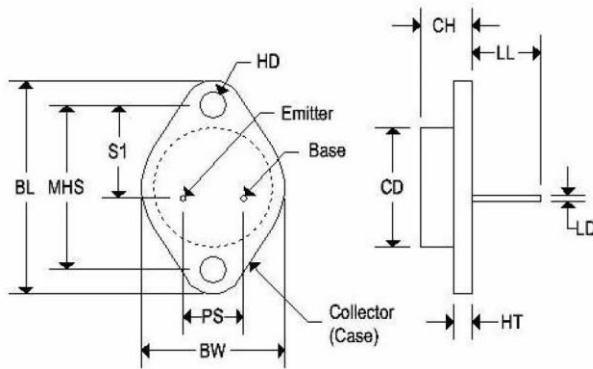
Characteristic		Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage ( $I_C = 100\text{mA}$ , $I_B = 0$ )	MJ410	$V_{CE0(sus)}$	200	-	V
	MJ411		300	-	
Collector Cutoff Current ( $V_{CE} = 200\text{V}$ , $I_B = 0$ ) ( $V_{CE} = 300\text{V}$ , $I_B = 0$ )	MJ410	$I_{CEO}$	-	0.25	mA
	MJ411		-	0.25	
Collector Cutoff Current ( $V_{CE} = 200\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ , $T_C = 125^\circ\text{C}$ ) ( $V_{CE} = 300\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ , $T_C = 125^\circ\text{C}$ )	MJ410	$I_{CEX}$	-	0.5	mA
	MJ411		-	0.5	
Emitter Cutoff Current ( $V_{EB} = 5.0\text{V}$ , $I_C = 0$ )		$I_{EBO}$	-	5.0	mA
DC Current Gain ( $I_C = 1.0\text{A}$ , $V_{CE} = 5.0\text{V}$ ) ( $I_C = 2.5\text{A}$ , $V_{CE} = 5.0\text{V}$ )		$h_{FE}$	30	90	-
			10	-	
Collector-Emitter Saturation Voltage ( $I_C = 1.0\text{A}$ , $I_B = 0.1\text{A}$ )		$V_{CE(sat)}$	-	0.8	V
Base-Emitter Saturation Voltage ( $I_C = 1.0\text{A}$ , $I_B = 0.1\text{A}$ )		$V_{BE(sat)}$	-	5.0	V
Current Gain – Bandwidth Product ( $I_C = 200\text{mA}$ , $V_{CE} = 10\text{V}$ , $f = 1.0\text{MHz}$ )		$F_T$	2.5	-	MHz

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## MECHANICAL CHARACTERISTICS

<b>Case:</b>	TO-3
<b>Marking:</b>	Alpha-Numeric
<b>Polarity:</b>	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

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FIGURE 1 – ACTIVE REGION SAFE OPERATING AREA

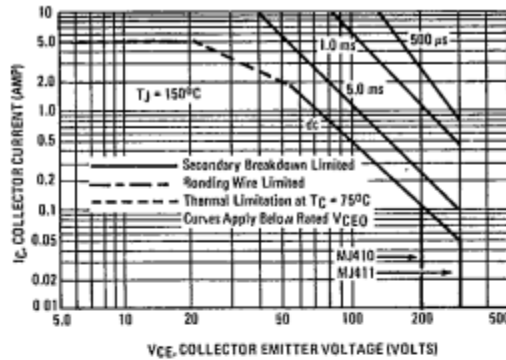


FIGURE 2 – DC CURRENT GAIN

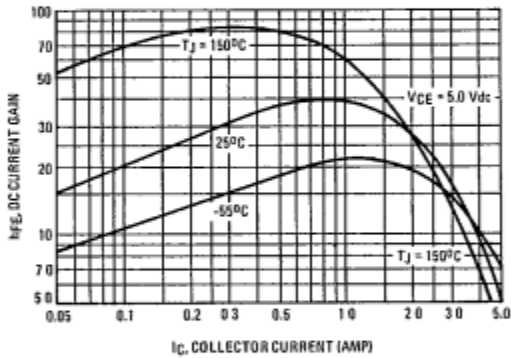


FIGURE 3 – "ON" VOLTAGES

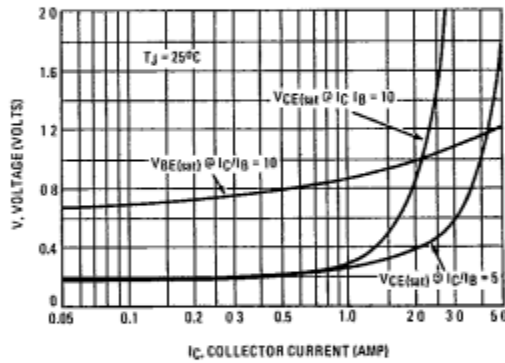


FIGURE 4 – SUSTAINING VOLTAGE TEST LOAD LINE

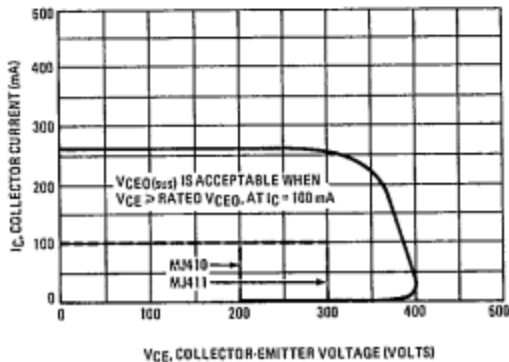


FIGURE 5 – SUSTAINING VOLTAGE TEST CIRCUIT

