



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## MJ15015 (NPN) & MJ15016 (PNP) Silicon Complementary Transistors General Purpose High Power Audio, Disk Head Positioner for Linear Applications

**Description:**

The MJ15015 (NPN) and MJ15016 (PNP) are complementary silicon power transistors in a TO3 type package designed for high power audio, disk head positioners, and other linear applications.

**Features:**

- High Safe Operating Area
- High Current-Gain – Bandwidth

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO}$ .....	120V
Collector–Emitter Voltage Base, $V_{CEV}$ .....	200V
Collector–Base Voltage, $V_{CBO}$ .....	200V
Emitter–Base Voltage, $V_{EBO}$ .....	7V
Collector Current – Continuous, $I_C$ .....	15A
Continuous Base Current, $I_B$ .....	7A
Total Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	180W
Derate Above $25^\circ\text{C}$ .....	1.03W/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ\text{C}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	1.52 to $0.98^\circ\text{C/W}$

**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	$V_{CEO(sus)}$	$I_C = 100\text{mA}$ , $I_B = 0$ , Note 3	120	–	–	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 60\text{V}$ , $V_{BE(off)} = 0\text{V}$	–	–	0.1	mA
	$I_{CEV}$	$V_{CEV} = \text{Rated Value}$ , $V_{BE(off)} = 1.5\text{V}$ , Note 3	–	–	1	mA
	$I_{CEV}$	$V_{CEV} = \text{Rated Value}$ , $V_{BE(off)} = 1.5\text{V}$ , $T_C = 150^\circ\text{C}$	–	–	6	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 7\text{V}$ , $I_C = 0$	–	–	0.2	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Second Breakdown</b>						
Second Breakdown Collector Current with Base Forward Bias	$I_{S/b}$	$V_{CE} = 60\text{V}$ , Note 1	3	-	-	A
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 2\text{V}$ , $I_C = 4\text{A}$	10	-	70	
		$V_{CE} = 4\text{V}$ , $I_C = 4\text{A}$	20	-	70	
		$V_{CE} = 4\text{V}$ , $I_C = 10\text{A}$	5	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4\text{A}$ , $I_B = 400\text{mA}$	-	-	1.1	V
		$I_C = 10\text{A}$ , $I_B = 3.3\text{A}$	-	-	3.0	V
		$I_C = 15\text{A}$ , $I_B = 7\text{A}$	-	-	5.0	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 4\text{V}$ , $I_C = 4\text{A}$	0.7	-	1.8	V
<b>Dynamic Characteristics</b>						
Current-Gain - Bandwidth Product MJ15015	$f_T$	$V_{CE} = 4\text{V}$ , $I_C = 1\text{A}$ , $f = 1\text{MHz}$	0.8	-	6	MHz
			MJ15016	2.2	-	18
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$	60	-	600	pF

Note 1. Pulse Test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

