



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°C	1.03W/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$
Thermal Resistance, Junction–to–Case, R_{thJC}	1.52 to 0.98°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
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
Second Breakdown						
Second Breakdown Collector Current with Base Forward Bias	$I_{S/b}$	$V_{CE} = 60\text{V}$, Note 1	3	-	-	A
ON Characteristics						
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
Dynamic Characteristics						
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 $\leq 2\%$.

