

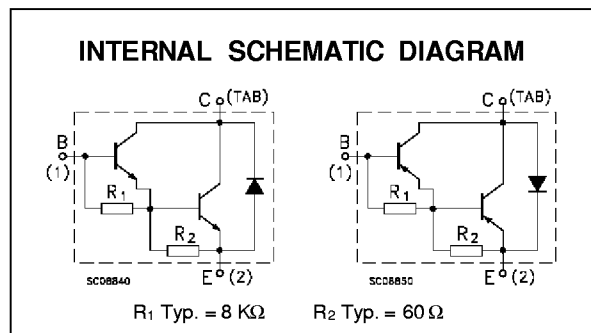
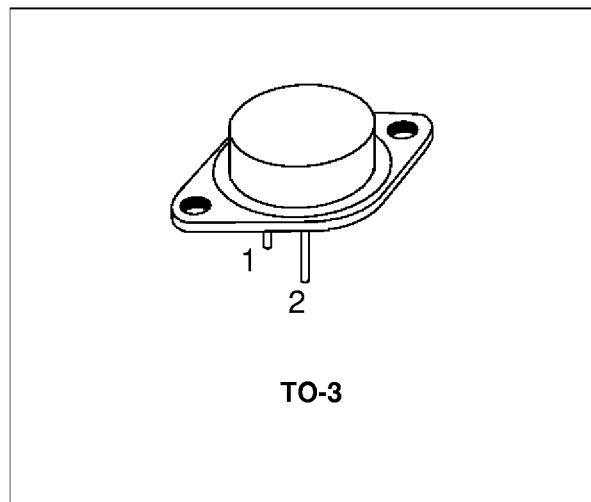
**COMPLEMENTARY SILICON POWER
DARLINGTON TRANSISTORS**

- MJ11013, MJ11014, MJ11015 AND MJ11016 ARE SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The MJ11012, MJ11014 and MJ11016 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in Jedec TO-3 metal case. They are intended for general purpose and amplifier applications.

The complementary PNP types are the MJ11011, MJ11013 and MJ11015 respectively.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit
		NPN	MJ11014	MJ11016	
		MJ11012	MJ11013	MJ11015	
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	60	90	120	V
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	60	90	120	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5			V
I_C	Collector Current	30			A
I_B	Base Current	1			A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ C$	200			W
T_{stg}	Storage Temperature	-65 to 200			$^\circ C$
T_j	Max. Operating Junction Temperature	200			$^\circ C$

For PNP types voltage and current values are negative.

MJ11011/MJ11012/MJ11013/MJ11014/MJ11015/MJ11016

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.87	°C/W
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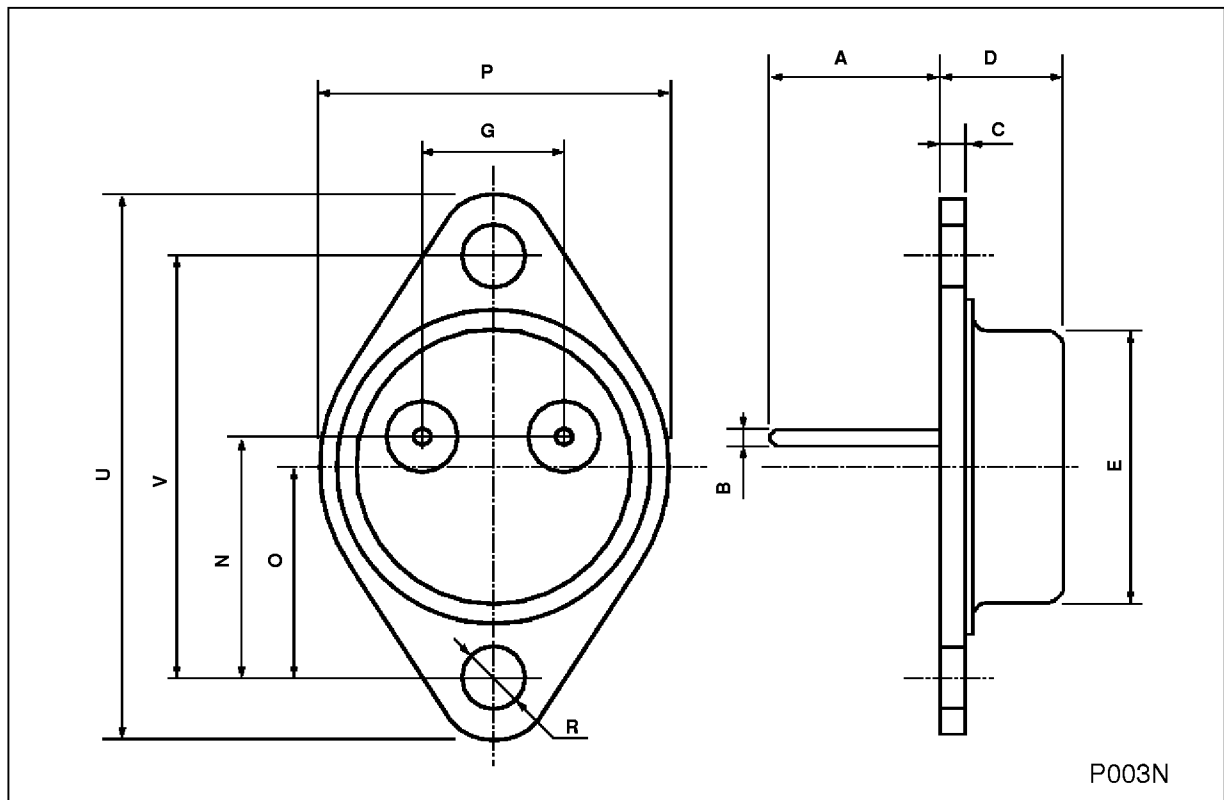
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 50\text{ V}$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			5	mA
I_{CER}	Collector Cut-off Current ($R_{BE} = 1\text{ K}\Omega$)	$V_{CE} = \text{Rated } V_{CEO}$ $T_{case} = 150\text{ °C}$ $V_{CE} = \text{Rated } V_{CEO}$			1 5	mA mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\text{ mA}$ for MJ11011, MJ11012 for MJ11013, MJ11014 for MJ11015, MJ11016	60 90 120			V V V
h_{FE*}	DC Current Gain	$I_C = 20\text{ A}$ $V_{BE} = 5\text{ V}$ $I_C = 30\text{ A}$ $V_{BE} = 5\text{ V}$	1000 200			
$V_{CE(sat)*}$	Collector-emitter Saturation Voltage	$I_C = 20\text{ A}$ $I_B = 200\text{ mA}$ $I_C = 30\text{ A}$ $I_B = 300\text{ mA}$			3 4	V V
$V_{BE(sat)*}$	Base-emitter Saturation Voltage	$I_C = 20\text{ A}$ $I_B = 200\text{ mA}$ $I_C = 30\text{ A}$ $I_B = 300\text{ mA}$			3.5 5	V V
h_{fe}	Small Signal Current Gain	$I_C = 10\text{ A}$ $V_{CE} = 3\text{ V}$ $f = 1\text{ MHz}$	4			

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-3 (H) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	



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