New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

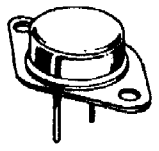
COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

..designed for use as output devices in complementary general purpose amplifier applications.

FEATURES:
* High Gain Darlington Performance
* High DC Current Gain hFE = 1000(Min) @ I_C = 20 A
* Monolithic Construction with Built-In Base-Emitter Shunt Resistor

PNP	NPN
MJ11011	MJ11012
MJ11013	MJ11014
MJ11015	MJ11016

30 AMPERE
COMPLEMENTARY
SILICON POWER
DARLINGTON TRANSISTOR
60-120 VOLTS
200 WATTS



TO-3

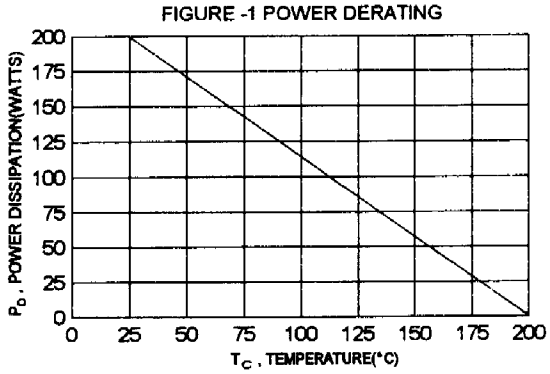
MAXIMUM RATINGS

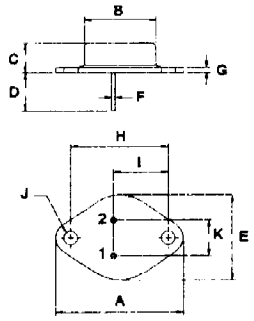
Characteristic	Symbol	MJ11011 MJ11012	MJ11013 MJ11014	MJ11015 MJ11016	Unit
Collector-Emitter Voltage	V_{CEO}	60	90	120	V
COllector-Base Voltage	V_{CBO}	60	90	120	V
Emitter-Base Voltage	V_{EBO}	5.0			V
Collector Current-Continuous -Peak	I_C I_{CM}	30 50			A
Base Current	I_B	1.0			A
Total Power Dissipation @T_C= 25°C Derate above 25°C	P_D	200 1.15			W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	- 65 to +200			°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	0.87	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

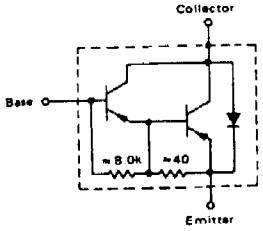
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Sustaining Voltage (1) (I_C = 100 mA, I_B = 0)	MJ11011,MJ11012 MJ11013,MJ11014 MJ11015,MJ11016	$V_{CEO(sus)}$	 60 90 120		V
Collector Cutoff Current (V_{CE} = 50 V, I_B = 0.0)		I_{CEO}		1.0	mA
Collector-Emitter Leakage Current (V_{CE} = 60 V,R_{BE}= 1.0k ohm) (V_{CE} = 90 V,R_{BE}= 1.0k ohm) (V_{CE} = 120 V,R_{BE}= 1.0k ohm) (V_{CE} = 60 V,R_{BE} = 1.0k ohm ,T_C = 125°C) (V_{CE} = 90 V,R_{BE} = 1.0k ohm , T_C =125°C) (V_{CE} = 120 V,R_{BE} = 1.0k ohm,T_C =125°C)	 MJ11011,MJ11012 MJ11013,MJ11014 MJ11015,MJ11016 MJ11011,MJ11012 MJ11013,MJ11014 MJ11015,MJ11016	I_{CER}		 1.0 1.0 1.0 5.0 5.0 5.0	mA
Emitter Cutoff Current (V_{EB} = 5.0 V,I_C= 0)		I_{EBO}		5.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 20 A, V_{CE} = 5.0 V) (I_C = 30 A, V_{CE} = 5.0 V)		hFE	 1000 200		
Collector-Emitter Saturation Voltage (I_C = 20 A, I_B = 200 mA) (I_C = 30 A, I_B = 300 mA)		$V_{CE(sat)}$		 3.0 4.0	V
Base-Emitter Saturation Voltage (I_C = 20 A, I_B = 200 mA) (I_C = 30 A, I_B = 300 mA))		$V_{BE(sat)}$		 3.5 5.0	V
DYNAMIC CHARACTERISTICS					
Small-Signal Current Gain (I_C = 10 A, V_{CE} = 3.0 V, f = 1.0 MHz)		$\|h_{fe}\|$	4.0		

(1) Pulse Test: Pulse width = 300 us , Duty Cycle ≦ 2.0%

(2) $f_T = |h_{fe}| \cdot f_{test}$

INTERNAL SCHEMATIC DIAGRAM

NPN
MJ11011
MJ11013
MJ11015



PNP
MJ11012
MJ11014
MJ11016