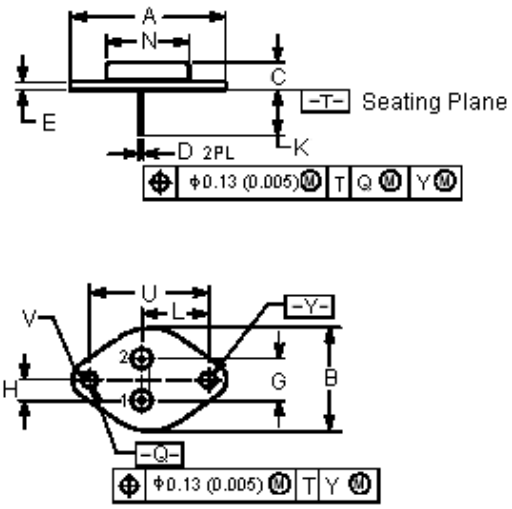
1165917

High-current complementary silicon transistors.
For use output devices in complementary general purpose amplifier applications.

Features:

- High DC current gain - h_{FE} = 1000 (minimum) at I_C - 20A dc.
- Monolithic construction with built-in base emitter shunt resistor.
- Junction temperature to +200°C.

(TO-3)

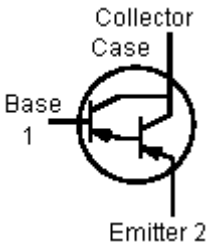


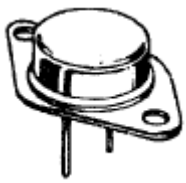
Style 1:
Pin 1. Base
2. Emitter
Collector (Case)

Dimensions	Minimum	Maximum
A	1.550 (39.37) Reference	
B	-	1.050 (26.67)
C	0.250 (6.35)	0.335 (8.51)
D	0.038 (0.97)	0.043 (1.09)
E	0.055 (1.40)	0.070 (1.77)
G	0.430 (10.92) BSC	
H	0.215 (5.46) BSC	
K	0.440 (11.18)	0.480 (12.19)
L	0.665 (16.89) BSC	
N	-	0.830 (21.08)
Q	0.151 (3.84)	0.165 (4.19)
U	1.187 (30.15) BSC	
V	0.131 (3.33)	0.188 (4.77)

Dimensions : Inches (Millimetres)

30 Ampere Darlington
Power Transistors
Complementary Silicon
60 - 120 Volts, 200 Watts





(TO-3)
Case 1-07
Style 1

Maximum Ratings

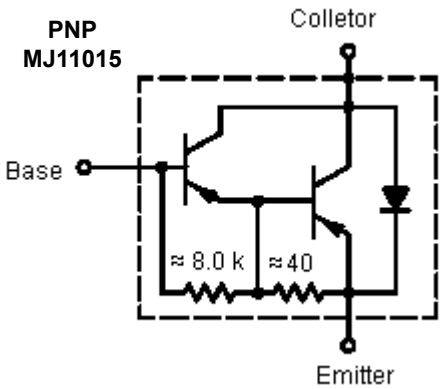
Rating		Symbol	Value	Unit
Collector-Emitter Voltage	**MJ11015**	V_{CEO}	120	V dc
Collector-Base Voltage	**MJ11015**	V_{CB}		
Emitter-Base Voltage		V_{EB}	5	
Collector Current		I_C	30	A dc
Base Current		I_B	1	
Total Device Dissipation at T_C = 25°C Derate above 25°C at TC = 100°C		P_D	200 1.15	W W/°C
Operating and Storage Junction Temperature Range		$T_{J,}$ T_{stg}	-55 to +200	°C

Thermal Characteristics

Characteristics	Symbol	Maximum	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.17	°C/W
Maximum Lead Temperature for Soldering Purposes for ≤10 Seconds	T_L	275	°C

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Darlington Circuit Schematic

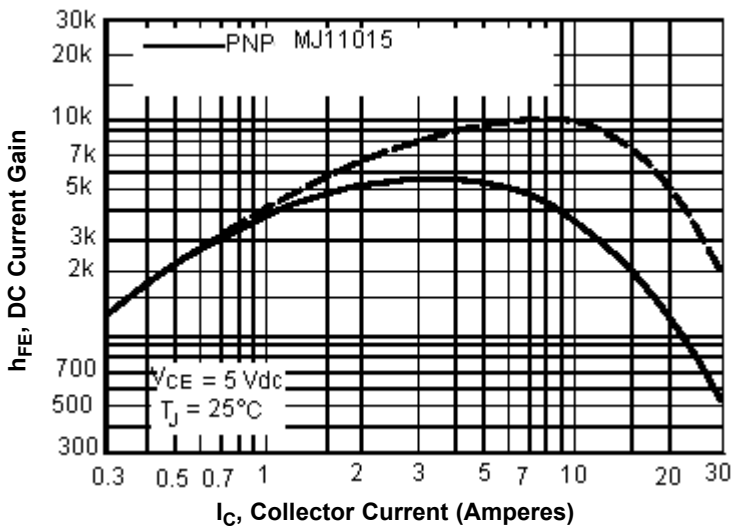


Electrical Characteristics (T_C = 25°C unless otherwise noted)

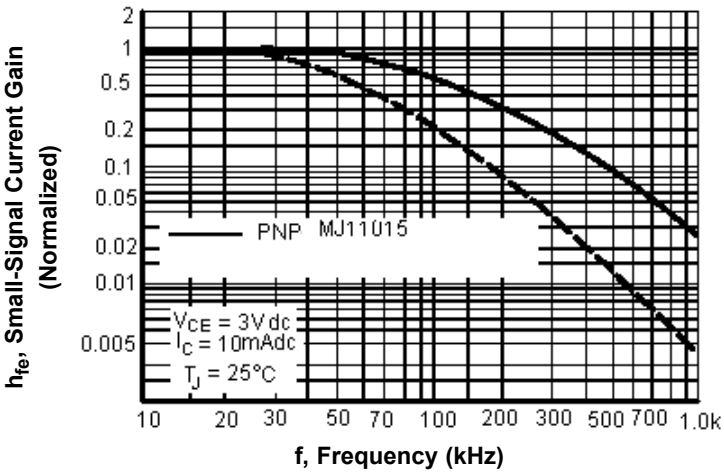
Characteristic		Symbol	Minimum	Maximum	Unit
Off Characteristics					
Collector-Emitter Brakdown Voltage (1) (I_C = 100mA dc, I_B = 0)	**MJ11015**	$V_{(BR)\ CEO}$	120	-	V dc
Collector-Emitter Leakage Current (V_{CE} = 120V dc, R_{BE} = 1kΩ) (V_{CE} = 120V dc, R_{BE} = 1kΩ, T_C = 150°C)	**MJ11015** **MJ11015**	I_{CER}	-	1 5	mA dc
Emitter Cut off Current (V_{BE} = 5.0V dc, I_C = 0)		I_{EBO}	-	5	
Collector-Emitter Leakage Current (V_{CE} = 5.0V dc, I_B = 0)		I_{CEO}	-	1	
On Characteristics (1)					
DC Current Gain (I_C = 20A dc, V_{CE} = 5V dc (I_C = 30A dc, V_{CE} = 5V dc)		h_{FE}	1000 200	- -	-
Collector-Emitter Saturation Voltage (I_C = 20A dc, I_B = 200mA dc) (I_C = 30A dc, I_B = 300mA dc)		$V_{CE\ (sat)}$	-	3 4	V dc
Base-Emitter Saturation Voltage (I_C = 20A dc, I_B = 200mA dc) (I_C = 30A dc, I_B = 300mA dc)		$V_{BE\ (sat)}$	-	3.5 5	
Dynamic Characteristics					
Current-Gain Bandwidth Product (I_C = 10A, V_{CE} = 3V dc, f = 1MHz)		h_{fe}	4	-	MHz

(1) Pulse Test: Pulse Width = 300μS, Duty Cycle ≤2.0%.

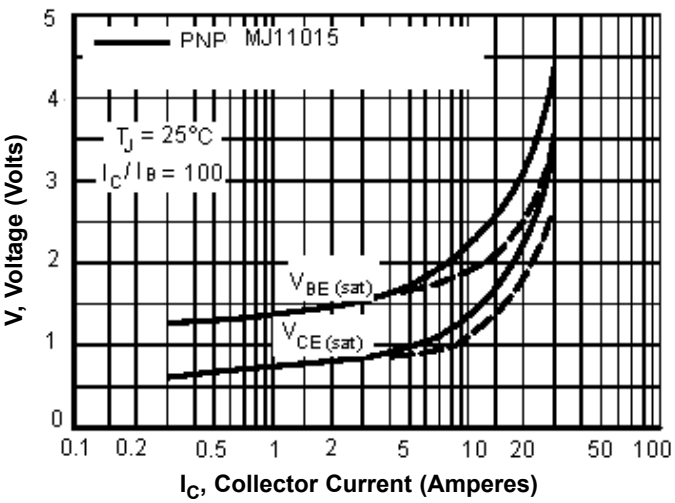
DC Current Gain (1)



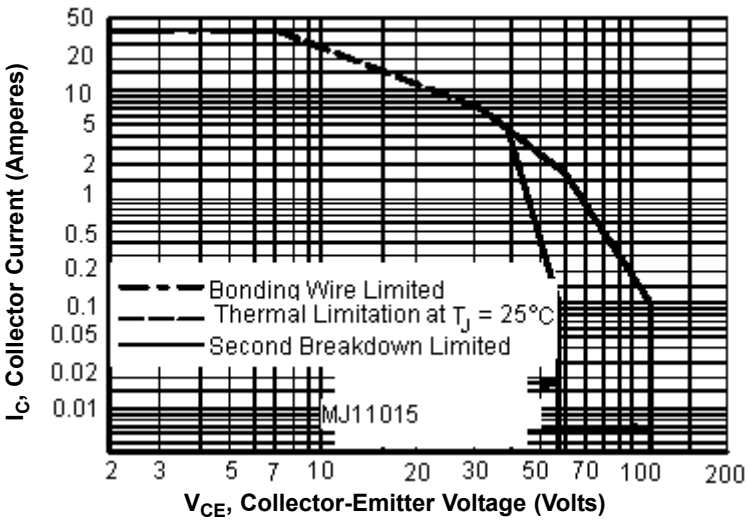
Small-Signal Current Gain



"On" Voltage (1)



Active Region DC Safe Operating Area



There are two limitations on the power handling ability of a transistor average junction temperature and secondary breakdown. Safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operations e.g., the transistor must not be subjected to greater dissipation than the curves indicate.
At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by secondary breakdown.

Part Number Table

Description	Part Number
Darlington Transistor, TO-3	MJ11015