Preferred Devices

Complementary Bipolar Power Transistors

Features

- Exceptional Safe Operating Area
- NPN/PNP Gain Matching within 10% from 50 mA to 5 A
- Excellent Gain Linearity
- High BVCEO
- High Frequency
- Pb-Free Packages are Available

Benefits

- Reliable Performance at Higher Powers
- Symmetrical Characteristics in Complementary Configurations
- Accurate Reproduction of Input Signal
- Greater Dynamic Range
- High Amplifier Bandwith

Applications

- High-End Consumer Audio Products
 - ♦Home Amplifiers
 - ♦ Home Receivers
- Professional Audio Amplifiers
 - ◆Theater and Stadium Sound Systems
 - ◆Public Address Systems (PAs)

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V _{CEO}	260	Vdc
Collector-Base Voltage	V _{CBO}	260	Vdc
Emitter-Base Voltage	V _{EBO}	5.0	Vdc
Collector–Emitter Voltage – 1.5 V	V _{CEX}	260	Vdc
Collector Current – Continuous – Peak (Note 1)	I _C	15 25	Adc
Base Current – Continuous	I _B	1.5	Adc
Total Power Dissipation @ T _C = 25°C Derate Above 25°C	P _D	200 1.43	Watts W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	- 65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.625	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Pulse Test: Pulse Width = 5 ms, Duty Cycle < 10%.

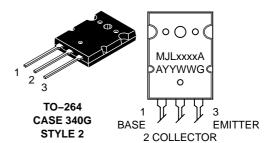


ON Semiconductor®

http://onsemi.com

15 AMPERES
COMPLEMENTARY
SILICON POWER
TRANSISTORS
260 VOLTS
200 WATTS

MARKING DIAGRAM



 xxxx
 = 3281 or 1302

 A
 = Location Code

 YY
 = Year

 WW
 = Work Week

 G
 = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
MJL3281A	TO-264	25 Units/Rail
MJL3281AG	TO-264 (Pb-Free)	25 Units/Rail
MJL1302A	TO-264	25 Units/Rail
MJL1302AG	TO-264 (Pb-Free)	25 Units/Rail

Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS	1			•
Collector–Emitter Sustaining Voltage (I _C = 100 mAdc, I _B = 0)	V _{CEO(sus)}	260	_	Vdc
Collector Cutoff Current (V _{CB} = 260 Vdc, I _E = 0)	Ісво	-	50	μAdc
Emitter Cutoff Current $(V_{EB} = 5 \text{ Vdc}, I_C = 0)$	I _{EBO}	-	5	μAdc
SECOND BREAKDOWN	<u>.</u>			
Second Breakdown Collector with Base Forward Biased (V _{CE} = 50 Vdc, t = 1 s (non–repetitive) (V _{CE} = 100 Vdc, t = 1 s (non–repetitive)	ls/b	4 1	_ _	Adc
ON CHARACTERISTICS	•			
DC Current Gain $ \begin{aligned} &(I_C = 500 \text{ mAdc, } V_{CE} = 5 \text{ Vdc}) \\ &(I_C = 1 \text{ Adc, } V_{CE} = 5 \text{ Vdc}) \\ &(I_C = 3 \text{ Adc, } V_{CE} = 5 \text{ Vdc}) \\ &(I_C = 5 \text{ Adc, } V_{CE} = 5 \text{ Vdc}) \\ &(I_C = 8 \text{ Adc, } V_{CE} = 5 \text{ Vdc}) \end{aligned} $	h _{FE}	75 75 75 75 75 45	150 150 150 150 -	
Collector–Emitter Saturation Voltage (I _C = 10 Adc, I _B = 1 Adc)	V _{CE(sat)}	-	3	Vdc
DYNAMIC CHARACTERISTICS	<u> </u>			•
Current-Gain – Bandwidth Product (I _C = 1 Adc, V _{CE} = 5 Vdc, f _{test} = 1 MHz)	f⊤	30	_	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f_{test} = 1 \text{ MHz}$)	C _{ob}	-	600	pF

TYPICAL CHARACTERISTICS

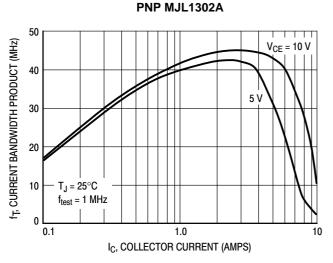


Figure 1. Typical Current Gain Bandwidth Product

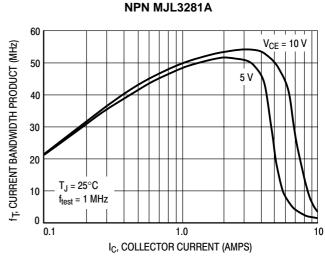


Figure 2. Typical Current Gain Bandwidth Product

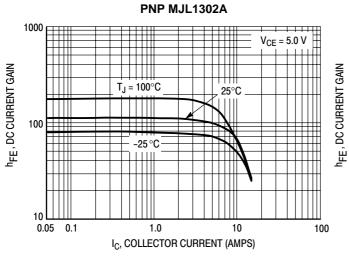


Figure 3. DC Current Gain

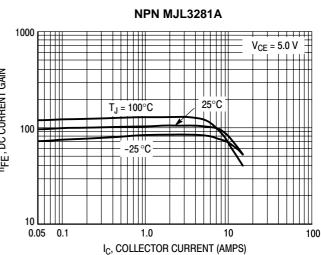


Figure 4. DC Current Gain

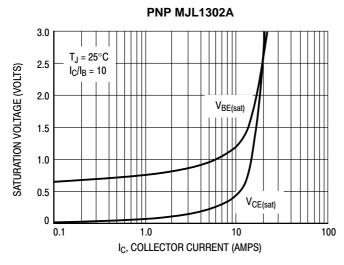


Figure 5. Typical Saturation Voltages

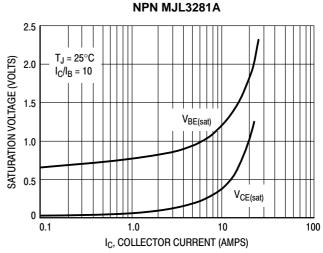


Figure 6. Typical Saturation Voltages

TYPICAL CHARACTERISTICS

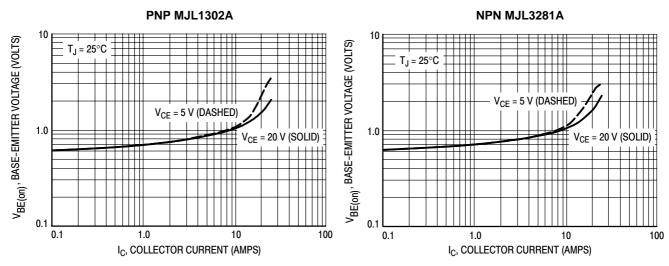


Figure 7. Typical Base-Emitter Voltage

Figure 8. Typical Base-Emitter Voltage

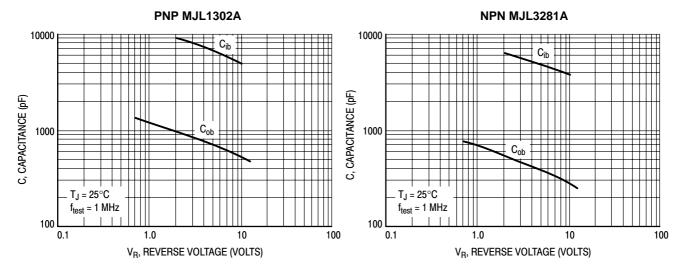


Figure 9. MJL1302A Typical Capacitance

Figure 10. MJL3281A Typical Capacitance

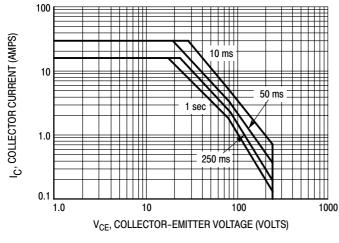


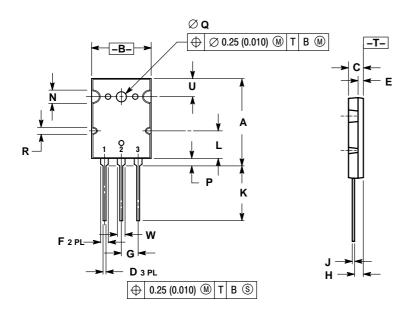
Figure 11. Active Region Safe Operating Area

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 operation; i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 11 is based on $T_{J(pk)} = 150^{\circ}\text{C}$; T_{C} is variable depending on conditions. At high case temperatures, thermal limitations will reduce the power than can be handled to values less than the limitations imposed by second breakdown.

PACKAGE DIMENSIONS

TO-3PBL (TO-264) CASE 340G-02 ISSUE J



*For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

NOTES

- DIMENSIONING AND TOLERANCING PER
 ANSLY 44 FM 4002
- ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS		INC	HES	
DIM	MIN	MAX	MIN	MAX	
Α	28.0	29.0	1.102	1.142	
В	19.3	20.3	0.760	0.800	
С	4.7	5.3	0.185	0.209	
D	0.93	1.48	0.037	0.058	
E	1.9	2.1	0.075	0.083	
F	2.2	2.4	0.087	0.102	
G	5.45 BSC		0.215 BSC		
Н	2.6	3.0	0.102	0.118	
J	0.43	0.78	0.017	0.031	
K	17.6	18.8	0.693	0.740	
L	11.2 REF		0.411 REF		
N	4.35 REF		0.172 REF		
Р	2.2	2.6	0.087	0.102	
Q	3.1	3.5	0.122	0.137	
R	2.25 REF		0.089 REF		
U	6.3	6.3 REF		0.248 REF	
w	2.8	3.2	0.110	0.125	

STYLE 2:

PIN 1. BASE

2. COLLECTOR

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многоканальный

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Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru_6 moschip.ru 4 moschip.ru 9