

# MJD340, NJVMJD340T4G (NPN), MJD350, NJVMJD350T4G (PNP)



ON Semiconductor®

<http://onsemi.com>

## High Voltage Power Transistors

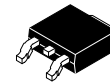
### DPAK For Surface Mount Applications

Designed for line operated audio output amplifier, switchmode power supply drivers and other switching applications.

#### Features

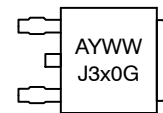
- Lead Formed for Surface Mount Applications in Plastic Sleeves (No Suffix)
- Electrically Similar to Popular MJE340 and MJE350
- 300 V (Min) –  $V_{CE0(sus)}$
- 0.5 A Rated Collector Current
- Epoxy Meets UL 94 V-0 @ 0.125 in
- ESD Ratings:
  - ♦ Human Body Model, 3B > 8000 V
  - ♦ Machine Model, C > 400 V
- NJV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free Packages\*

**SILICON  
POWER TRANSISTORS  
0.5 AMPERE  
300 VOLTS, 15 WATTS**



**DPAK  
CASE 369C  
STYLE 1**

#### MARKING DIAGRAM



A = Assembly Location  
Y = Year  
WW = Work Week  
J3x0 = Device Code  
x = 4 or 5  
G = Pb-Free Package

#### MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	$V_{CE0}$	300	Vdc
Collector-Base Voltage	$V_{CB}$	300	Vdc
Emitter-Base Voltage	$V_{EB}$	3	Vdc
Collector Current Continuous Peak	$I_C$	0.5 0.75	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	15 0.12	W W/ $^\circ\text{C}$
Total Power Dissipation (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.56 0.012	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

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.

1. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

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

# MJD340, NJVMJD340T4G (NPN), MJD350, NJVMJD350T4G (PNP)

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	8.33	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	80	$^{\circ}C/W$
Leading Temperature for Soldering Purpose	$T_L$	260	$^{\circ}C$

2. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

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

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

### OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage (Note 3) ( $I_C = 1\text{ mA}$ , $I_B = 0$ )	$V_{CEO(sus)}$	300	-	V
Collector Cutoff Current ( $V_{CB} = 300\text{ V}$ , $I_E = 0$ )	$I_{CEO}$	-	0.1	mA
Emitter Cutoff Current ( $V_{BE} = 3\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	-	0.1	mA

### ON CHARACTERISTICS (Note 3)

DC Current Gain ( $I_C = 50\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$h_{FE}$	30	240	-
Collector-Emitter Saturation Voltage ( $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$ )	$V_{CE(sat)}$	-	1	V
Base-Emitter On Voltage ( $I_C = 1\text{ A}$ , $V_{CE} = 10\text{ V}$ )	$V_{BE(on)}$	-	1.5	V

### DYNAMIC CHARACTERISTICS

Current Gain — Bandwidth Product ( $I_C = 50\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 10\text{ MHz}$ )	$f_T$	10	-	MHz
---	-------	----	---	-----

3. Pulse Test: Pulse Width  $\leq 300\ \mu s$ , Duty Cycle  $\leq 2\%$ .

## TYPICAL CHARACTERISTICS

### MJD340

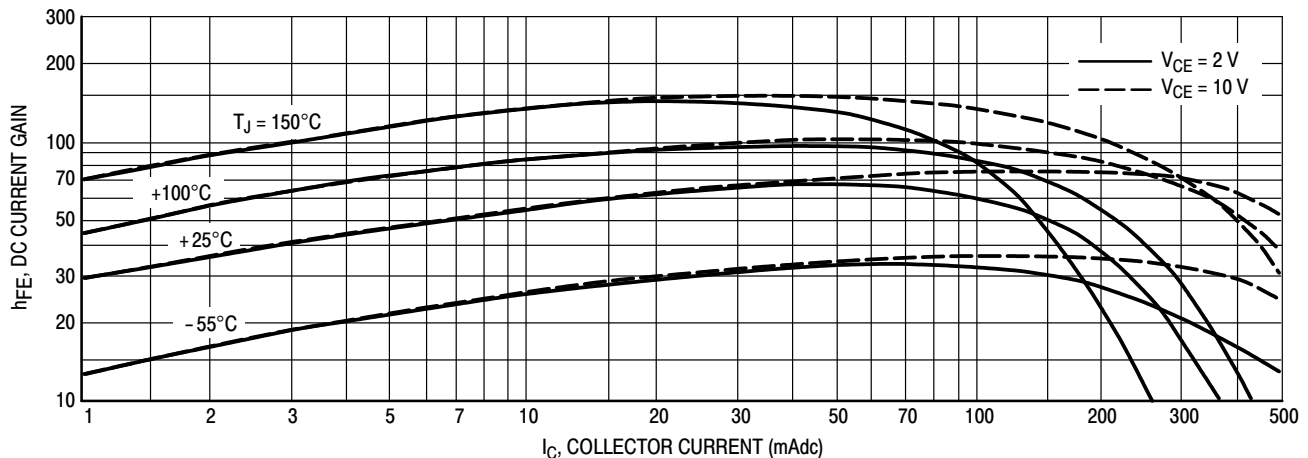


Figure 1. DC Current Gain

MJD340, NJVMJD340T4G (NPN), MJD350, NJVMJD350T4G (PNP)

MJD340

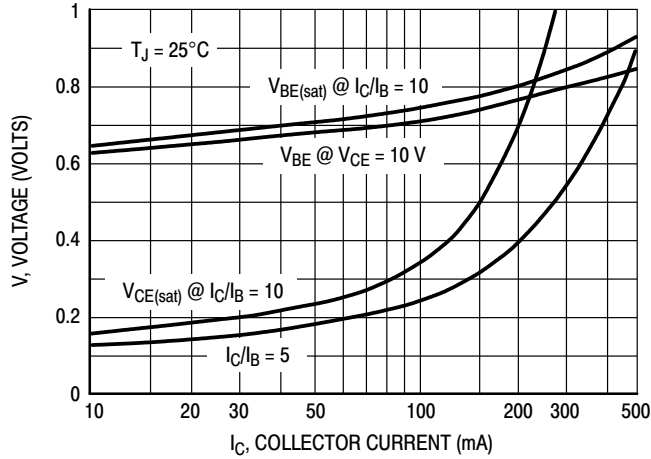


Figure 2. "On" Voltages

MJD350

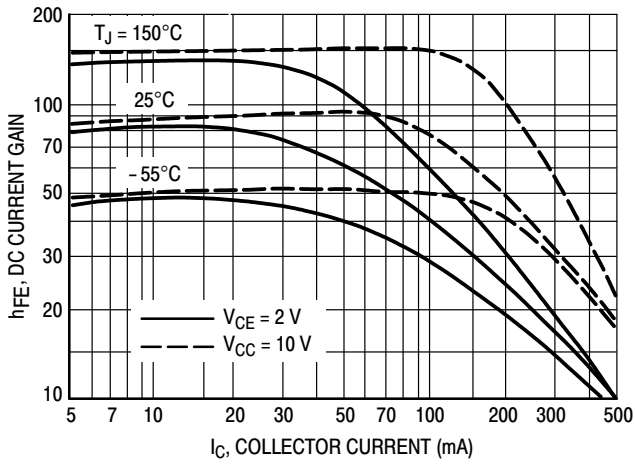


Figure 3. DC Current Gain

MJD350

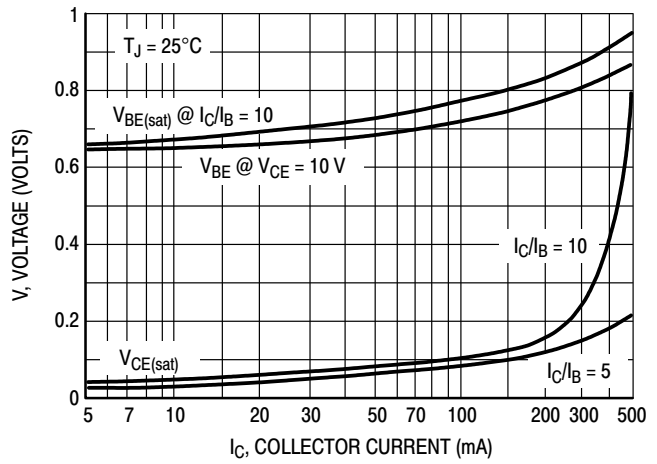


Figure 4. "On" Voltages

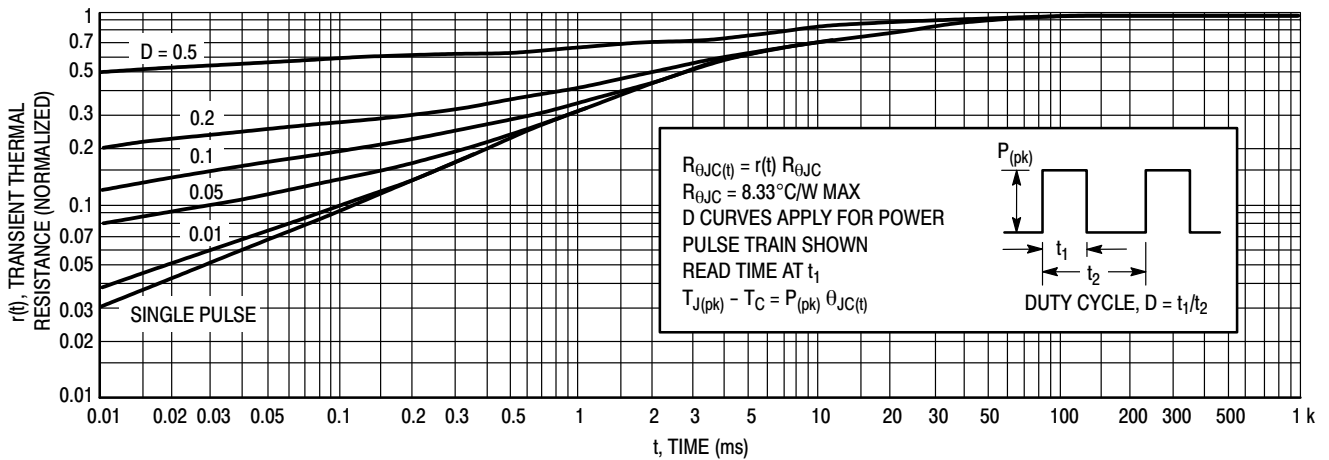


Figure 5. Thermal Response

## MJD340, NJVMJD340T4G (NPN), MJD350, NJVMJD350T4G (PNP)

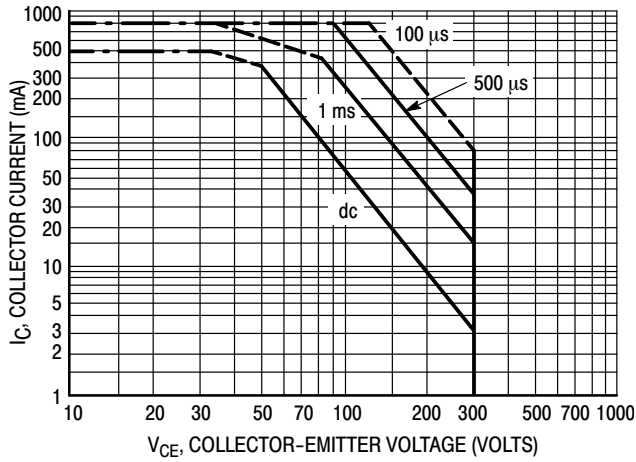


Figure 6. Active Region Safe Operating Area

There are two limitations on the power handling ability of a transistor: average junction temperature and second 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 6 is based on  $T_{J(pk)} = 150^\circ\text{C}$ ;  $T_C$  is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(pk)} \leq 150^\circ\text{C}$ .  $T_{J(pk)}$  may be calculated from the data in Figure 5. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

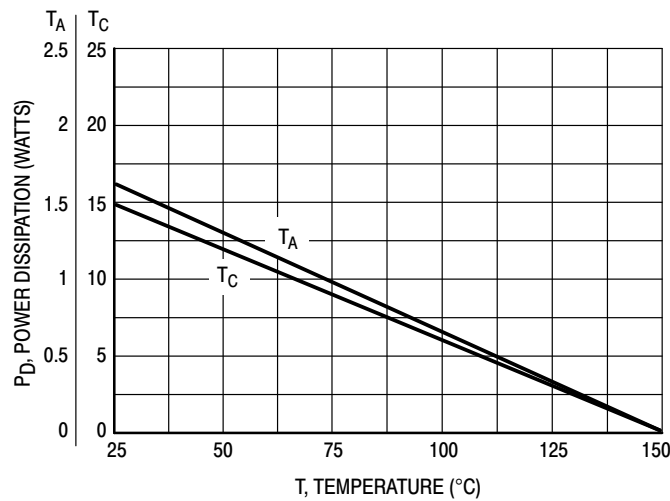


Figure 7. Power Derating

### ORDERING INFORMATION

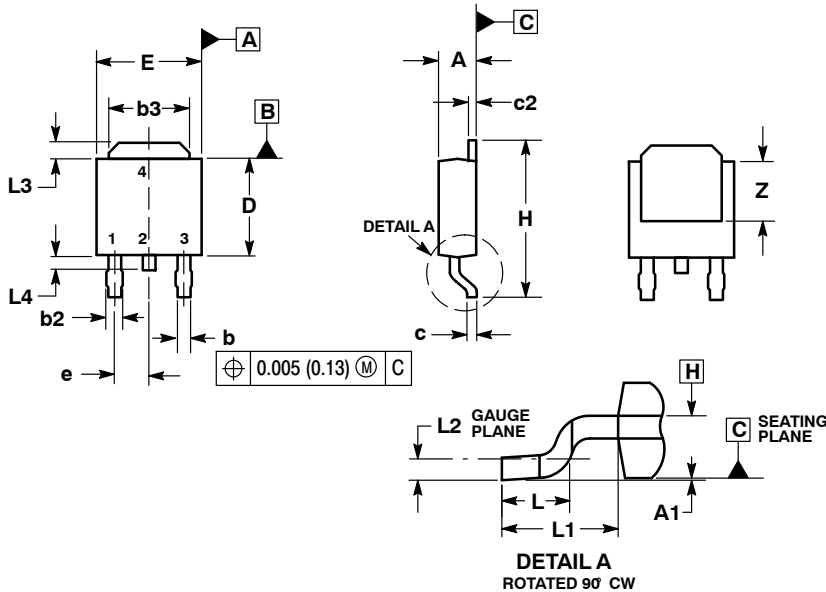
Device	Package	Shipping <sup>†</sup>
MJD340G	DPAK (Pb-Free)	75 Units / Rail
MJD340RLG	DPAK (Pb-Free)	1,800 / Tape & Reel
MJD340T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
NJVMJD340T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
MJD350G	DPAK (Pb-Free)	75 Units / Rail
MJD350T4G	DPAK (Pb-Free)	2,500 / Tape & Reel
NJVMJD350T4G	DPAK (Pb-Free)	2,500 / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MJD340, NJVMJD340T4G (NPN), MJD350, NJVMJD350T4G (PNP)

## PACKAGE DIMENSIONS

### DPAK CASE 369C-01 ISSUE D

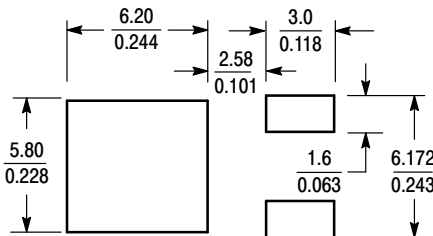


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.086	0.094	2.18	2.38
A1	0.000	0.005	0.00	0.13
b	0.025	0.035	0.63	0.89
b2	0.030	0.045	0.76	1.14
b3	0.180	0.215	4.57	5.46
c	0.018	0.024	0.46	0.61
c2	0.018	0.024	0.46	0.61
D	0.235	0.245	5.97	6.22
E	0.250	0.265	6.35	6.73
e	0.090 BSC		2.29 BSC	
H	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.108 REF		2.74 REF	
L2	0.020 BSC		0.51 BSC	
L3	0.035	0.050	0.89	1.27
L4	---	0.040	---	1.01
Z	0.155	---	3.93	---

### SOLDERING FOOTPRINT\*



SCALE 3:1 (mm/inches)

**STYLE 1:**

- PIN 1. BASE
- COLLECTOR
- EMITTER
- COLLECTOR

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

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

### PUBLICATION ORDERING INFORMATION

**LITERATURE FULFILLMENT:**  
Literature Distribution Center for ON Semiconductor  
P.O. Box 5163, Denver, Colorado 80217 USA  
**Phone:** 303-675-2175 or 800-344-3860 Toll Free USA/Canada  
**Fax:** 303-675-2176 or 800-344-3867 Toll Free USA/Canada  
**Email:** orderlit@onsemi.com

**N. American Technical Support:** 800-282-9855 Toll Free USA/Canada  
**Europe, Middle East and Africa Technical Support:**  
Phone: 421 33 790 2910  
**Japan Customer Focus Center**  
Phone: 81-3-5817-1050

**ON Semiconductor Website:** [www.onsemi.com](http://www.onsemi.com)  
**Order Literature:** <http://www.onsemi.com/orderlit>  
For additional information, please contact your local Sales Representative

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)