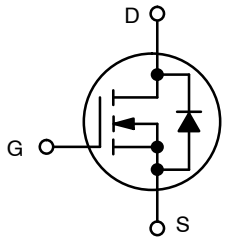
MOSFET – Power, Single N-Channel

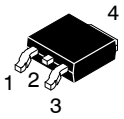
40 V, 16 mΩ, 24 A

NVD5C486NL

$V_{(BR)DSS}$	$R_{DS(on)}$	I_D
40 V	16 mΩ @ 10 V	24 A
	24.5 mΩ @ 4.5 V	



N-CHANNEL MOSFET



DPAK3
CASE 369C
STYLE 2

Features

- Low $R_{DS(on)}$ to Minimize Conduction Losses
- Low Q_G and Capacitance to Minimize Driver Losses
- AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

Parameter			Symbol	Value	Unit
Drain-to-Source Voltage			V_{DSS}	40	V
Gate-to-Source Voltage			V_{GS}	±20	V
Continuous Drain Current $R_{\theta JC}$ (Notes 1 & 3)	Steady State	T_C = 25 °C	I_D	24	A
		T_C = 100 °C		17	
Power Dissipation $R_{\theta JC}$ (Note 1)		T_C = 25 °C	P_D	18	W
		T_C = 100 °C		9.0	
Continuous Drain Current $R_{\theta JA}$ (Notes 1, 2 & 3)	Steady State	T_A = 25 °C	I_D	9.8	A
		T_A = 100 °C		7.0	
Power Dissipation $R_{\theta JA}$ (Notes 1 & 2)		T_A = 25 °C	P_D	2.9	W
		T_A = 100 °C		1.4	
Pulsed Drain Current	T_A = 25 °C, t_p = 10 μs		I_{DM}	110	A
Operating Junction and Storage Temperature			T_J, T_{stg}	−55 to 175	°C
Source Current (Body Diode)			I_S	15	A
Single Pulse Drain-to-Source Avalanche Energy (T_J = 25 °C, $I_{L(pk)}$ = 1.7 A)			E_{AS}	63	mJ
Lead Temperature for Soldering Purposes (1/8″ from case for 10 s)			T_L	260	°C

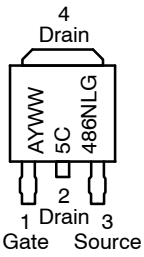
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL RESISTANCE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Junction-to-Case (Drain) (Note 1)	$R_{\theta JC}$	8.2	°C/W
Junction-to-Ambient – Steady State (Note 2)	$R_{\theta JA}$	52	

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. Surface-mounted on FR4 board using a 650 mm^2, 2 oz. Cu pad.
3. Maximum current for pulses as long as 1 second is higher but is dependent on pulse duration and duty cycle.

MARKING DIAGRAM & PIN ASSIGNMENT



A = Assembly Location
Y = Year
WW = Work Week
5C486NL = Device Code
G = Pb-Free Package

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

© Semiconductor Components Industries, LLC, 2017

Downloaded from Arrow.com.

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

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
OFF CHARACTERISTICS							
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μA		40			V
Drain-to-Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$				17		mV/°C
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 40 V	T_J = 25 °C			10	μA
			T_J = 125 °C			250	
Gate-to-Source Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} = 20 V				100	nA
ON CHARACTERISTICS (Note 4)							
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_D = 20 μA		1.2		2.2	V
Negative Threshold Temperature Coefficient	$V_{GS(TH)}/T_J$				4.6		mV/°C
Drain-to-Source On Resistance	$R_{DS(on)}$	V_{GS} = 4.5 V, I_D = 10 A			19.6	24.5	mΩ
Drain-to-Source On Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 10 A			13.3	16	mΩ
Forward Transconductance	g_{FS}	V_{DS} = 3 V, I_D = 10 A			25.5		S
CHARGES, CAPACITANCES AND GATE RESISTANCES							
Input Capacitance	C_{iss}	V_{GS} = 0 V, f = 1.0 MHz, V_{DS} = 25 V			530		pF
Output Capacitance	C_{oss}				210		
Reverse Transfer Capacitance	C_{rss}				13		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 4.5 V, V_{DS} = 32 V, I_D = 10 A			4.7		nC
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 10 V, V_{DS} = 32 V, I_D = 10 A			9.8		nC
Threshold Gate Charge	$Q_{G(TH)}$				1.2		
Gate-to-Source Charge	Q_{GS}				2.0		
Gate-to-Drain Charge	Q_{GD}				1.5		
Plateau Voltage	V_{GP}				3.2		V
SWITCHING CHARACTERISTICS (Note 5)							
Turn-On Delay Time	$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 32 V, I_D = 10 A, R_G = 2.5 Ω			6.0		ns
Rise Time	t_r				14		
Turn-Off Delay Time	$t_{d(off)}$				15		
Fall Time	t_f				2.0		
DRAIN-SOURCE DIODE CHARACTERISTICS							
Forward Diode Voltage	V_{SD}	V_{GS} = 0 V, I_S = 10 A	T_J = 25 °C		0.88	1.2	V
			T_J = 125 °C		0.77		
Reverse Recovery Time	t_{RR}	V_{GS} = 0 V, dIs/dt = 100 A/μs, I_S = 10 A			19		ns
Charge Time	ta				8.0		
Discharge Time	tb				10		
Reverse Recovery Charge	Q_{RR}				10		nC

4. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
5. Switching characteristics are independent of operating junction temperatures.

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

TYPICAL CHARACTERISTICS

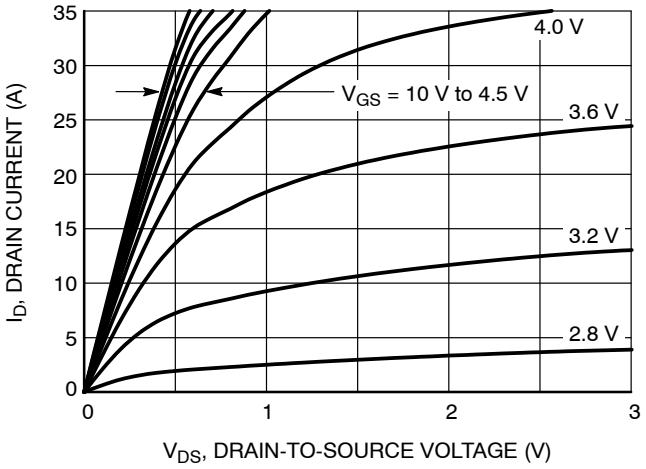


Figure 1. On-Region Characteristics

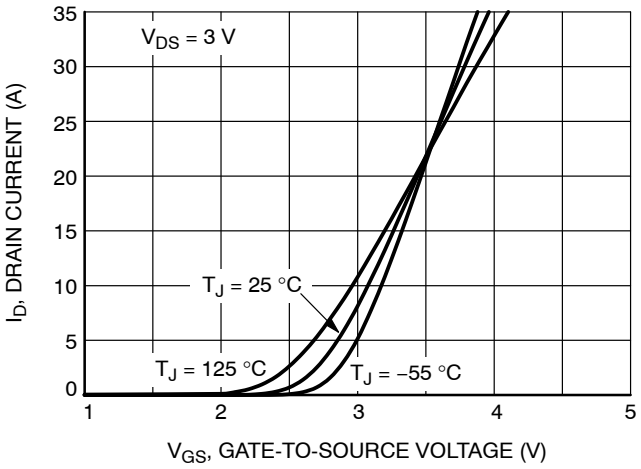


Figure 2. Transfer Characteristics

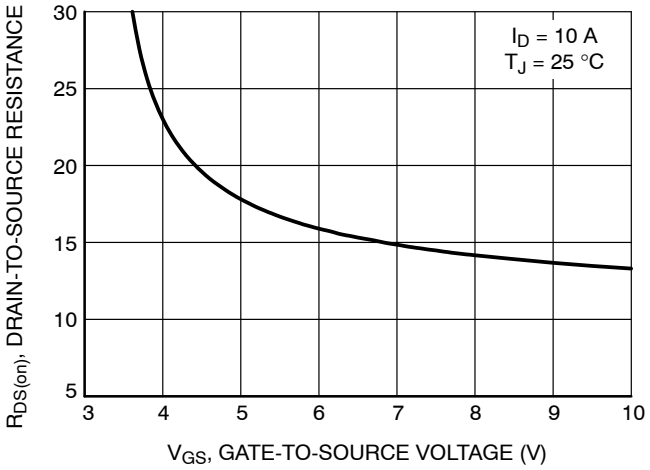


Figure 3. On-Resistance vs. Gate-to-Source Voltage

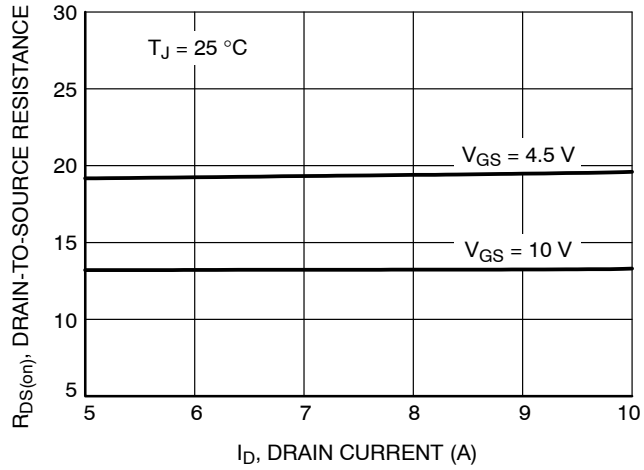


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

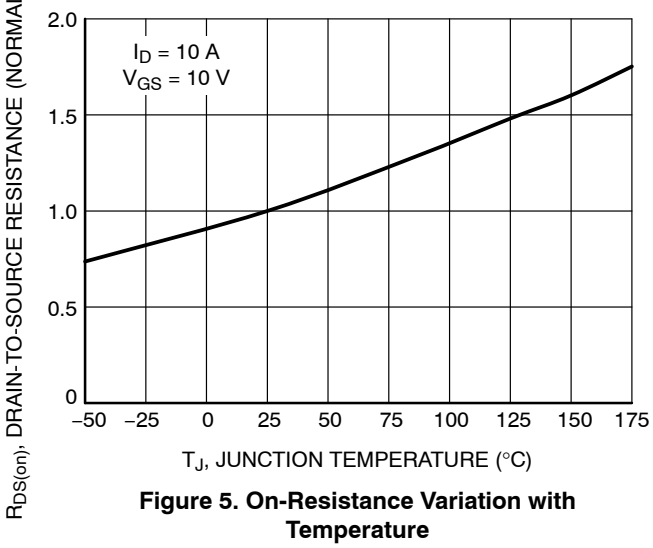


Figure 5. On-Resistance Variation with Temperature

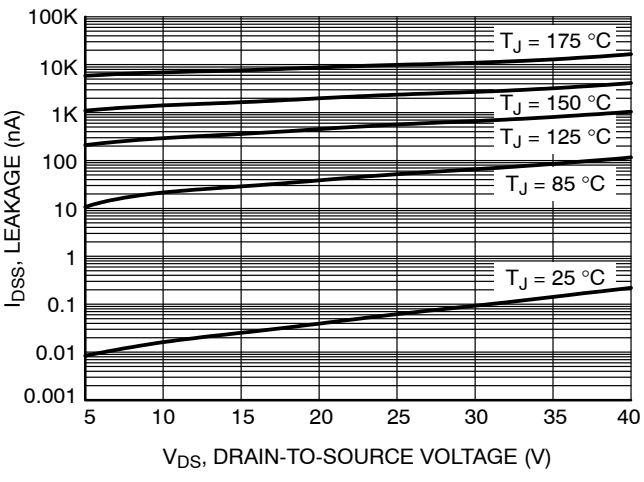


Figure 6. Drain-to-Source Leakage Current vs. Voltage

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

TYPICAL CHARACTERISTICS

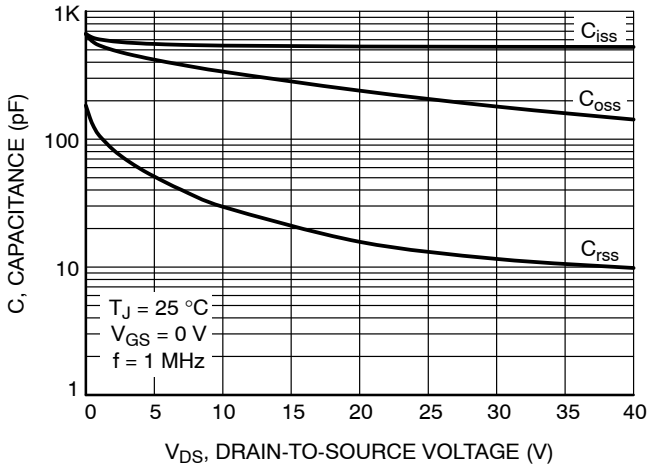


Figure 7. Capacitance Variation

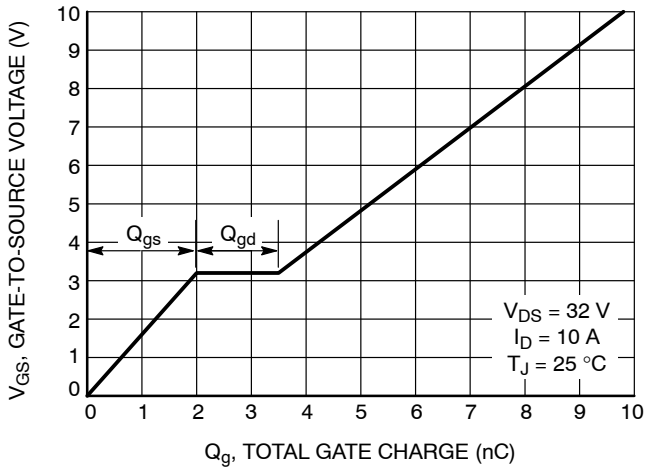


Figure 8. Gate-to-Source Voltage vs. Total Charge

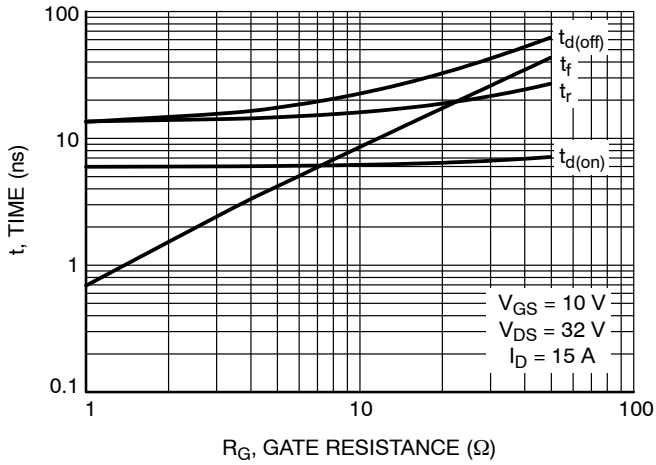


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

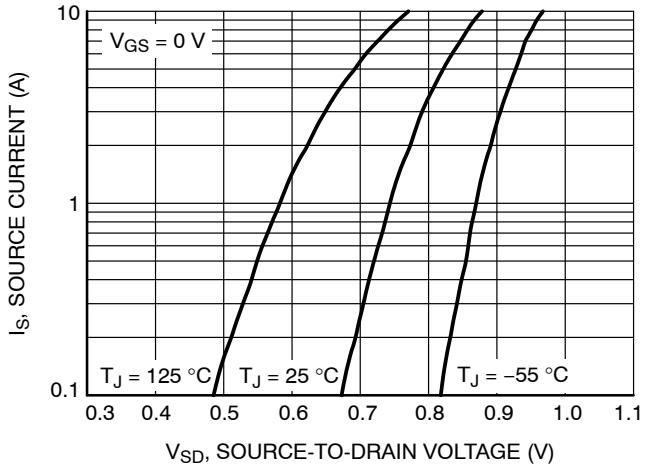


Figure 10. Diode Forward Voltage vs. Current

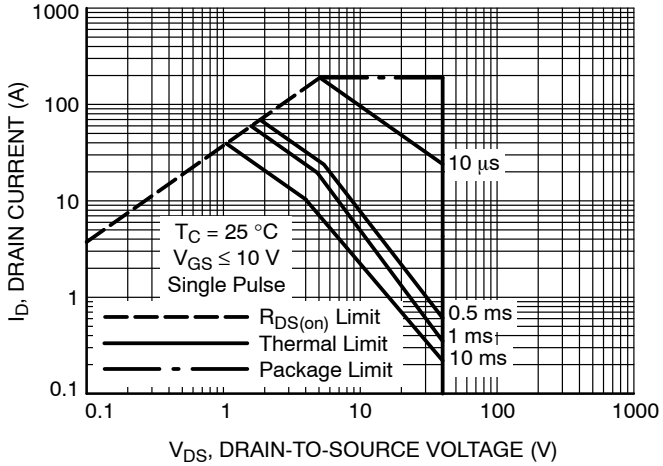


Figure 11. Maximum Rated Forward Biased Safe Operating Area

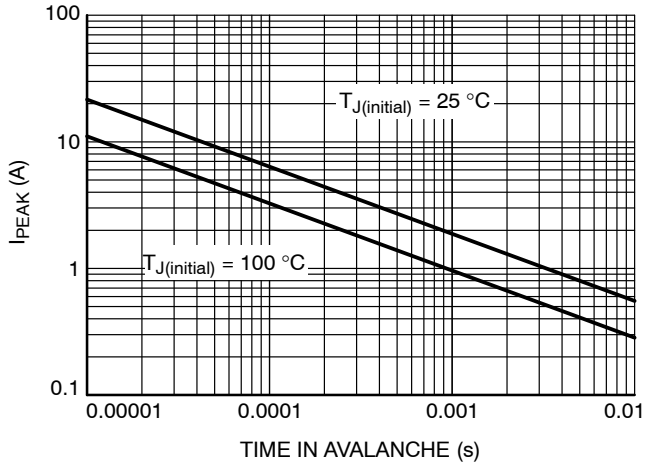


Figure 12. Maximum Drain Current vs. Time in Avalanche

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

TYPICAL CHARACTERISTICS

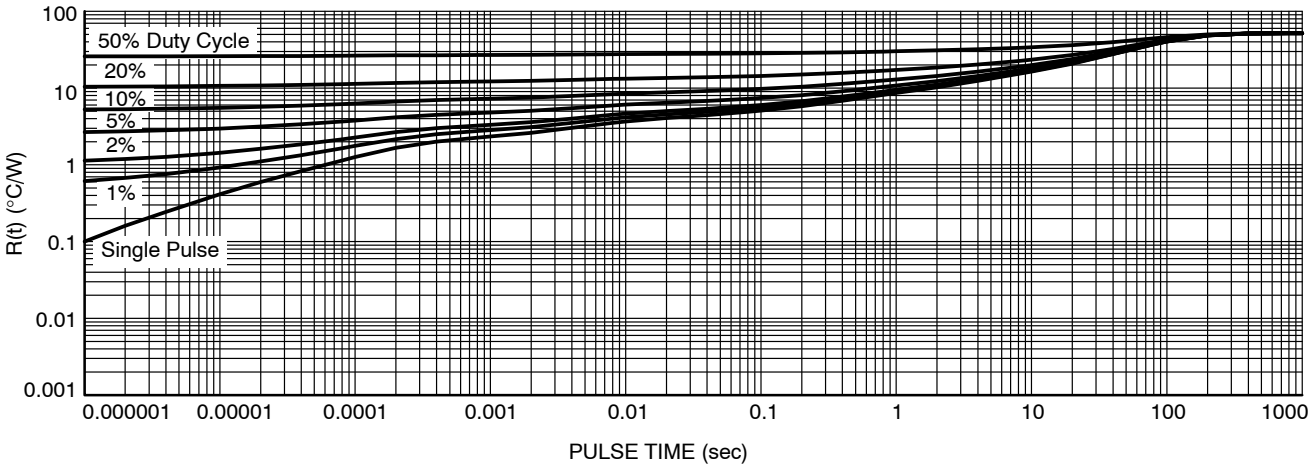


Figure 13. Thermal Response

ORDERING INFORMATION

Order Number	Package	Shipping†
NVD5C486NLT4G	DPAK3 (Pb-Free)	2500 / Tape & Reel

† 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.

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

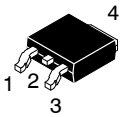
REVISION HISTORY

Revision	Description of Changes	Date
1	Document rebranded to **onsemi** format.	10/6/2025

This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

Share Feedback
Your Opinion Matters

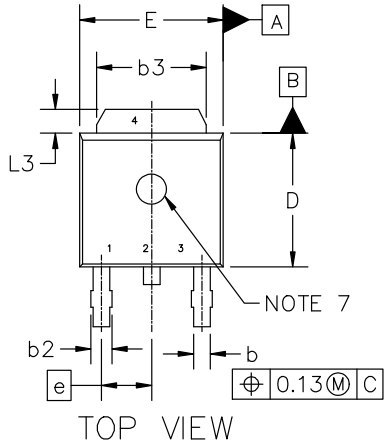
Downloaded from Arrow.com.



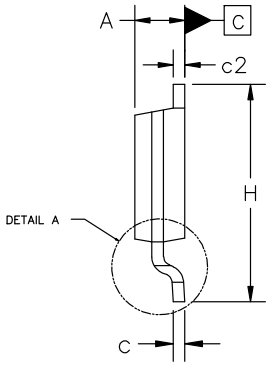
SCALE 1:1

DPAK−3 6.10x6.54x2.28, 2.29P
CASE 369C
ISSUE L

DATE 24 AUG 2026

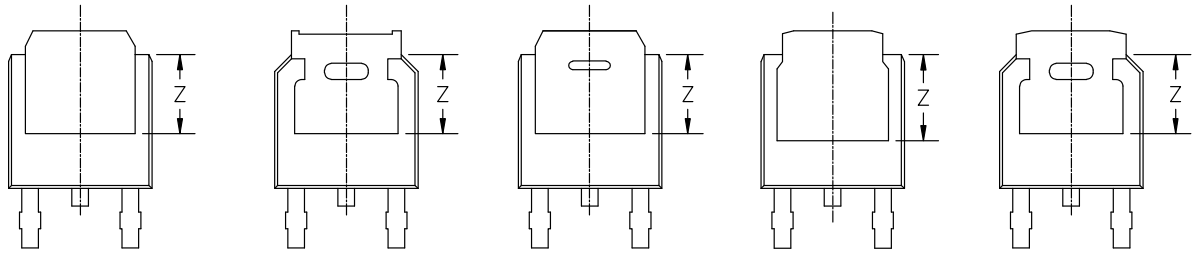


TOP VIEW



SIDE VIEW

MILLIMETERS			
DIM	MIN	NOM	MAX
A	2.18	2.28	2.38
A1	0.00	−−−	0.13
b	0.63	0.76	0.89
b2	0.72	0.93	1.14
b3	4.57	5.02	5.46
c	0.46	0.54	0.61
c2	0.46	0.54	0.61
D	5.97	6.10	6.22
E	6.35	6.54	6.73
e	2.29 BSC		
H	9.40	9.91	10.41
L	1.40	1.59	1.78
L1	2.90 REF		
L2	0.51 BSC		
L3	0.89	−−−	1.27
L4	−−−	−−−	1.01
Z	3.93	−−−	−−−

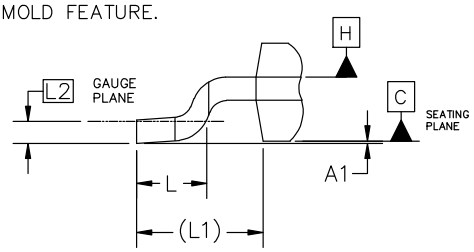


BOTTOM VIEW

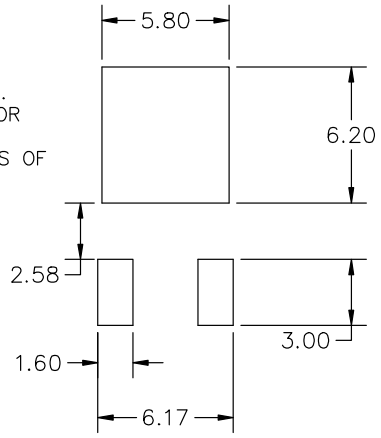
ALTERNATE CONSTRUCTIONS

NOTES:

1. DIMENSIONING AND TOLERANCING ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3, AND Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS.
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.
7. OPTIONAL MOLD FEATURE.



DETAIL A
ROTATED 90° CW



RECOMMENDED MOUNTING FOOTPRINT*
*For additional information on our Pb−Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques reference manual, SOLDERRM/D.

DOCUMENT NUMBER:	**98AON10527D**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	**DPAK−3 6.10x6.54x2.28, 2.29P**	**PAGE 1 OF 2**

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** 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. **onsemi** does not convey any license under its patent rights nor the rights of others.

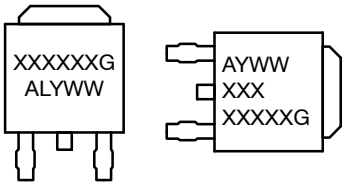
© Semiconductor Components Industries, LLC, 2011

Downloaded from Arrow.com.

DPAK−3 6.10x6.54x2.28, 2.29P
CASE 369C
ISSUE L

DATE 24 AUG 2026

GENERIC MARKING DIAGRAM*



IC **Discrete**

XXXXXX	= Device Code
A	= Assembly Location
L	= Wafer Lot
Y	= Year
WW	= Work Week
G	= Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 3:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 4:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 5:
PIN 1. GATE
2. ANODE
3. CATHODE
4. ANODE

STYLE 6:
PIN 1. MT1
2. MT2
3. GATE
4. MT2

STYLE 7:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 8:
PIN 1. N/C
2. CATHODE
3. ANODE
4. CATHODE

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. RESISTOR ADJUST
4. CATHODE

STYLE 10:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** 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. **onsemi** does not convey any license under its patent rights nor the rights of others.

© Semiconductor Components Industries, LLC, 2011

Downloaded from Arrow.com.

onsemi, ONSEMI , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent−Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as−is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** 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. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** 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. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** 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 **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

◊

Downloaded from Arrow.com.