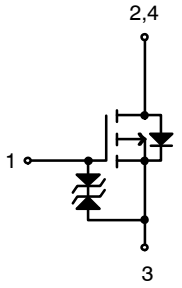
MOSFET – Power, P-Channel, Single ATPAK

-60 V, -35 A, 29.5 mΩ

ATP113

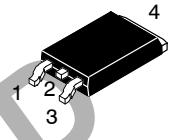


1 Gate
2 Drain
3 Source
4 Drain

ELECTRICAL CONNECTION

Features

- ON−Resistance $R_{DS(on)}1$ = 22.5 mΩ (typ)
- 4 V Drive
- Protection Diode in
- Input Capacitance Ciss = 2400 pF (typ)
- This Device is a Pb−Free and Halogen Free



DPAK (Single Gauge) / ATPAK
CASE 369AM

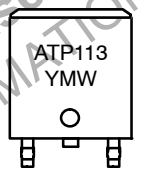
ABSOLUTE MAXIMUM RATINGS (Ta = 25°C) (Note 1)

Parameter	Symbol	Conditions	Value	Unit
Drain−to−Source Voltage	V_{DSS}		−60	V
Gate−to−Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−35	A
Drain Current (PW ≤ 10 μs)	I_{DP}	PW ≤ 10 μs, duty cycle ≤ 1%	−105	A
Allowable Power Dissipation	P_D	Tc = 25°C	50	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) (Note 1)	E_{AS}		95	mJ
Avalanche Current (Note 2)	I_{AV}		−18	A

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.

1. V_{DD} = −10 V, L = 500 μH, I_{AV} = −18 A
2. L ≤ 500 μH, Single pulse

MARKING DIAGRAM



ATP113 = Specific Device Code
Y = Year of Production
M = Assembly Operation Month
W = Work Week in the Month

ORDERING INFORMATION

Device	Package	Shipping†
ATP113−TL−H	DPAK / ATPAK (Pb−Free and Halide Free)	3000 / 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.

DISCONTINUED
THIS DEVICE IS NOT AVAILABLE
PLEASE CONTACT YOUR onsemi
REPRESENTATIVE FOR INFORMATION

© Semiconductor Components Industries, LLC, 2013

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

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = −1 mA, V_{GS} = 0 V	−60	–	–	V
Zero−Gate Voltage Drain Current	I_{DSS}	V_{DS} = −60 V, V_{GS} = 0 V	–	–	−1	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = +16 V, V_{DS} = 0 V	–	–	+10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS} = −10 V, I_D = −1 mA	−1.2	–	−2.6	V
Forward Transfer Admittance	|yfs|	V_{DS} = −10 V, I_D = −18 A	–	37	–	S
Static Drain to Source On−State Resistance	R_{DS}(on)1	I_D = −18 A, V_{GS} = −10 V	–	22.5	29.5	mΩ
	R_{DS}(on)2	I_D = −9 A, V_{GS} = −4.5 V	–	27	38	mΩ
	R_{DS}(on)3	I_D = −5 A, V_{GS} = −4 V	–	29	44	mΩ
Input Capacitance	Ciss	V_{DS} = −20 V, f = 1 MHz	–	2400	–	pF
Output Capacitance	Coss		–	250	–	pF
Reverse Transfer Capacitance	Crss		–	195	–	pF
Turn−ON Delay Time	t_d(on)	See specified Test Circuit.	–	15	–	ns
Rise Time	t_r		–	125	–	ns
Turn−OFF Delay Time	t_d(off)		–	250	–	ns
Fall Time	t_f		–	200	–	ns
Total Gate Charge	Qg	V_{DS} = −30 V, V_{GS} = −10 V, I_D = −35 A	–	55	–	nC
Gate to Source Charge	Qgs		–	7.5	–	nC
Gate to Drain “Miller” Charge	Qgd		–	12	–	nC
Diode Forward Voltage	V_{SD}	I_S = −35 A, V_{GS} = 0 V	–	−0.98	−1.5	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit

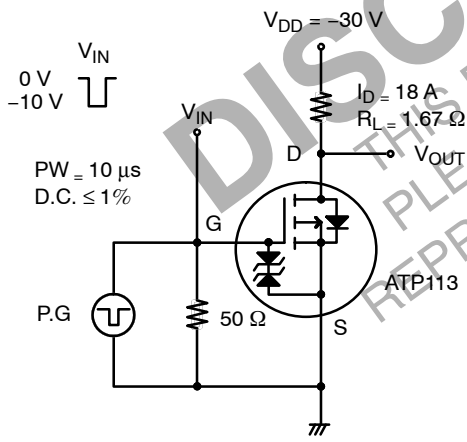


Figure 1. Switching Time Test Circuit

DISCONTINUED
THIS DEVICE IS NOT AVAILABLE
PLEASE CONTACT YOUR onsemi
REPRESENTATIVE FOR INFORMATION

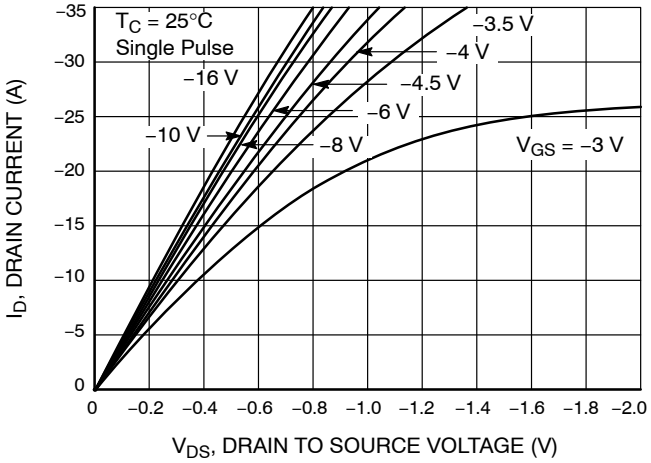


Figure 2. I_D – V_{DS}

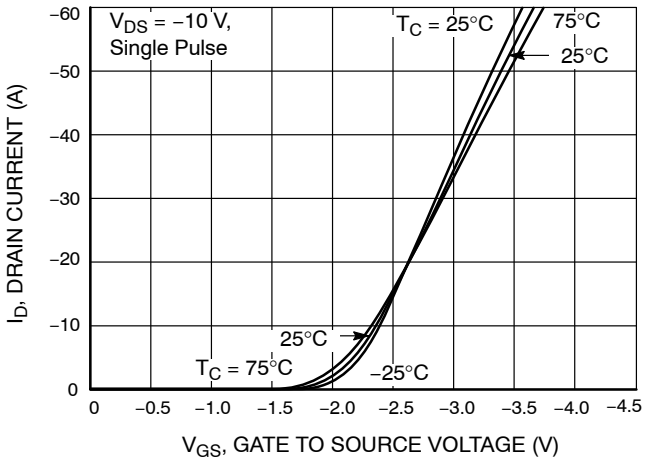


Figure 3. I_D – V_{GS}

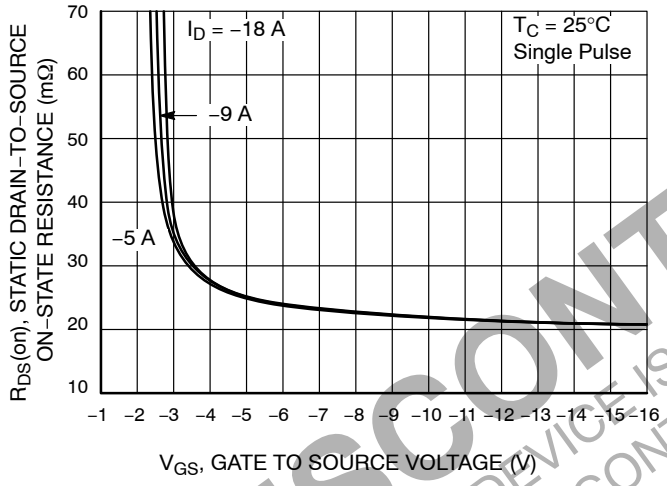


Figure 4. R_{DS}(on) – V_{GS}

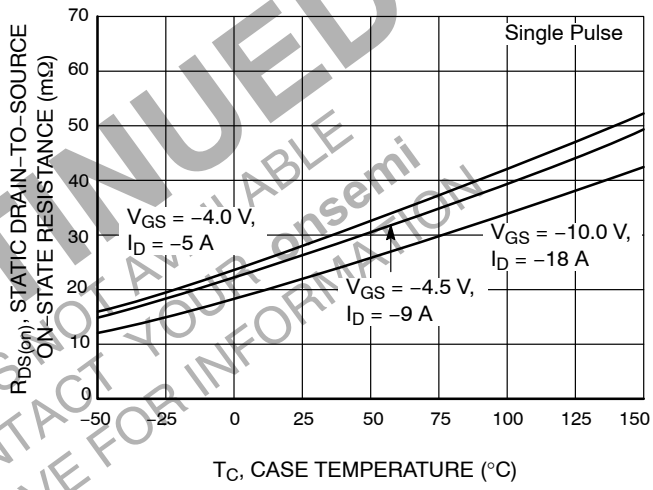


Figure 5. R_{DS}(on) – T_C

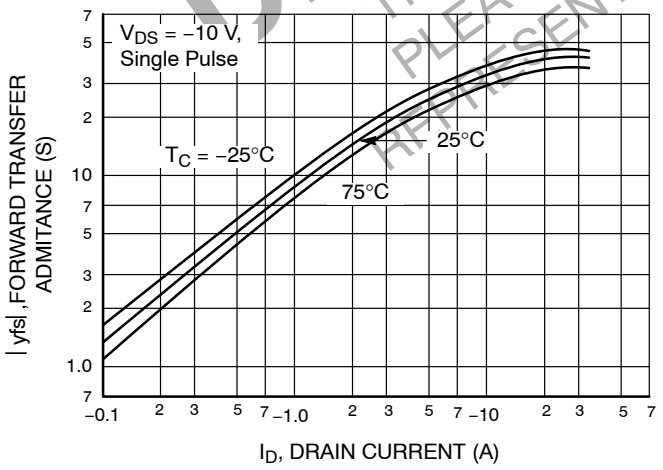


Figure 6. | yfs | – I_D

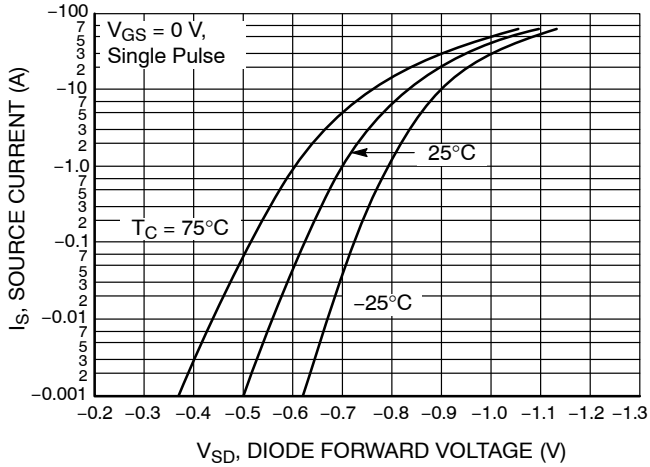


Figure 7. I_S – V_{SD}

DISCONTINUED
THIS DEVICE IS NOT AVAILABLE
PLEASE CONTACT YOUR onsemi
REPRESENTATIVE FOR INFORMATION

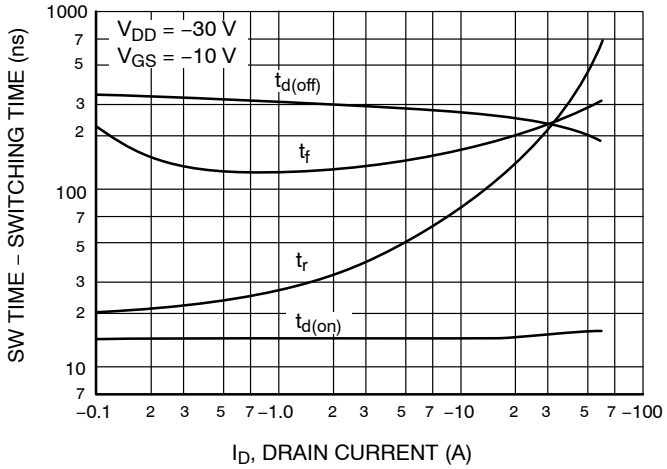


Figure 8. SW Time – I_D

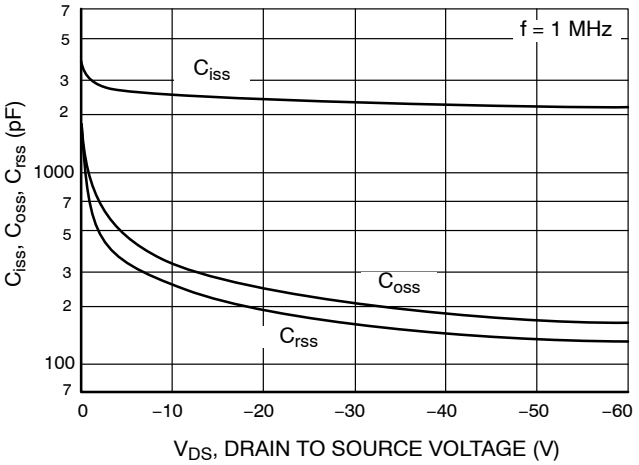


Figure 9. C_{iss}, C_{oss}, C_{rss} – V_{DS}

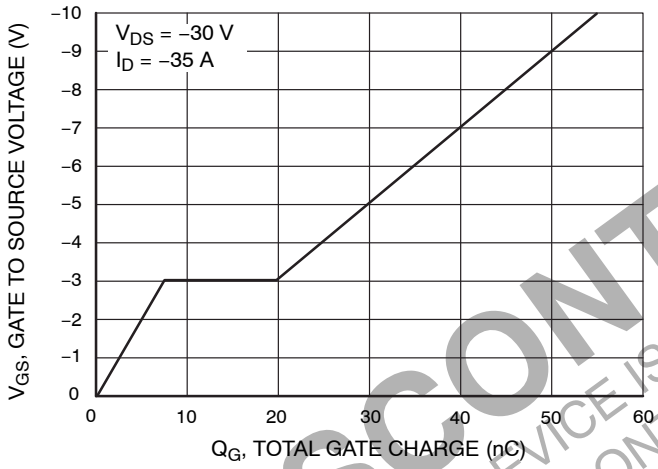


Figure 10. V_{GS} – Q_g

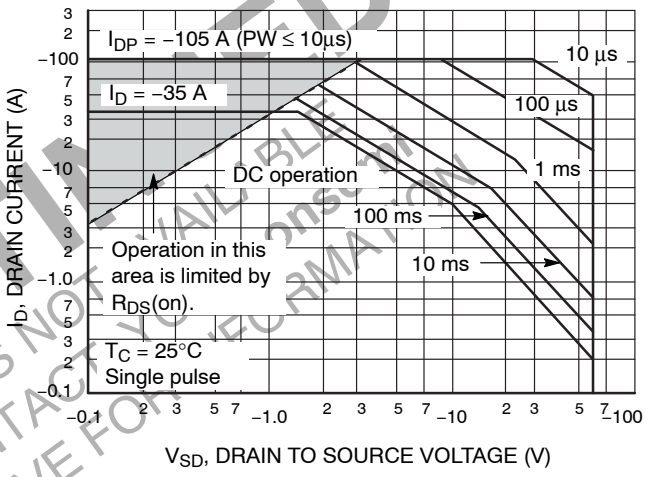


Figure 11. ASO

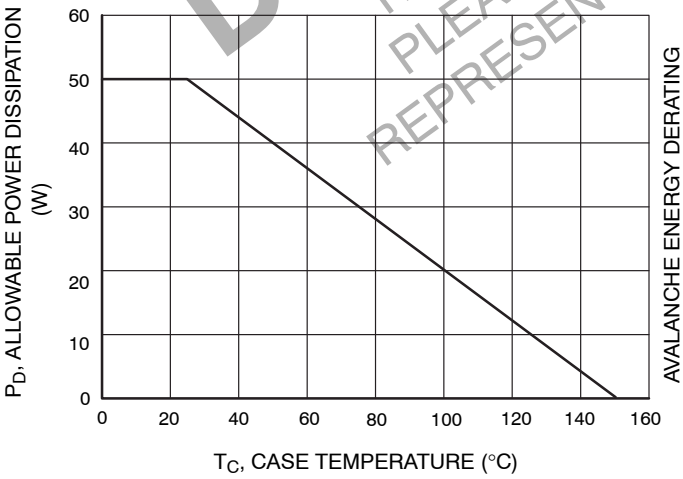


Figure 12. P_D – T_C

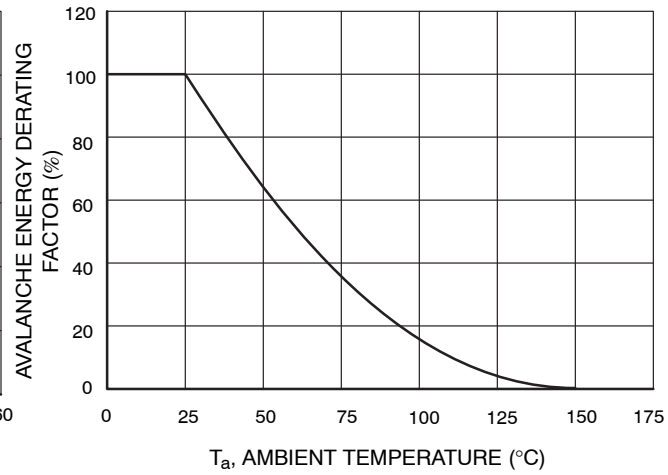


Figure 13. E_{AS} – T_a

DISCONTINUED
THIS DEVICE IS NOT AVAILABLE FOR 2nd SOURCE
PLEASE CONTACT YOUR ON SEMI
REPRESENTATIVE FOR INFORMATION

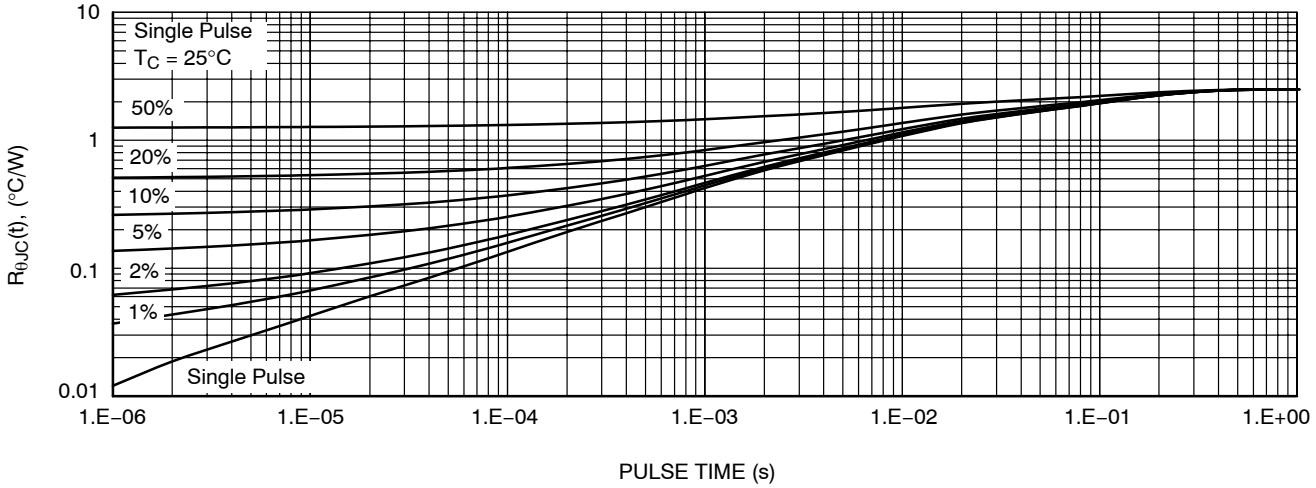


Figure 14. Thermal Response

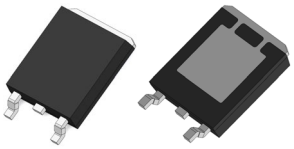
DISCONTINUED
THIS DEVICE IS NOT AVAILABLE
PLEASE CONTACT YOUR onsemi
REPRESENTATIVE FOR INFORMATION

REVISION HISTORY

Revision	Description of Changes	Date
2	Document Discontinued.	8/4/2026

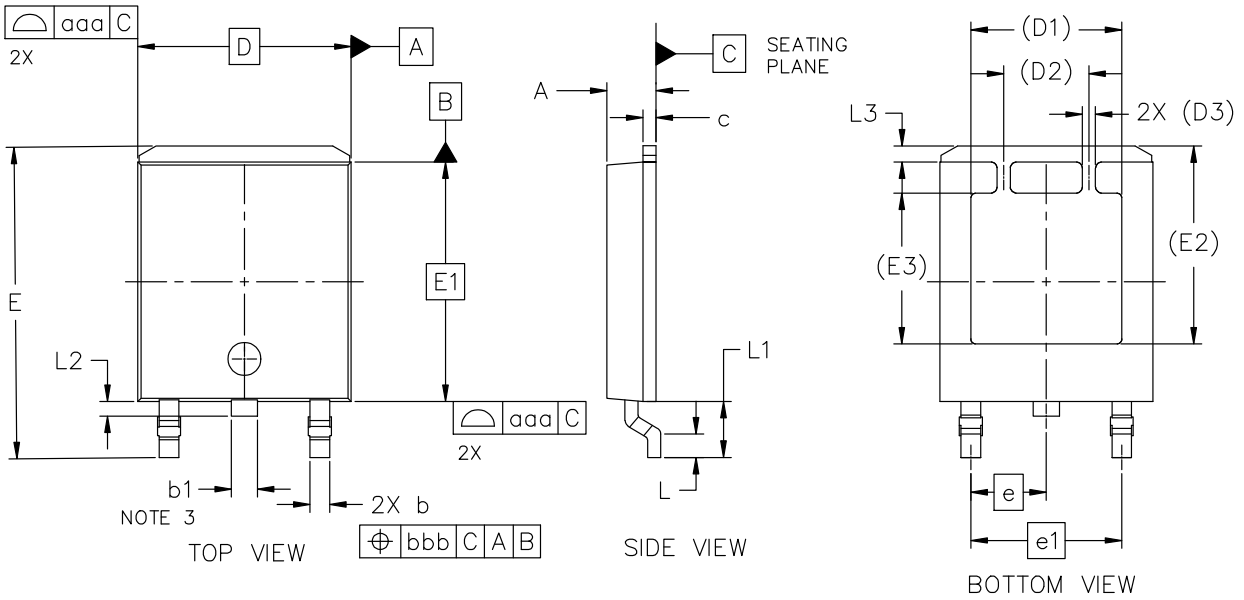
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

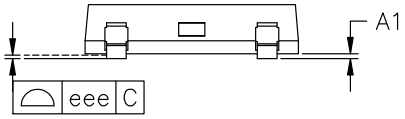
DISCONTINUED
THIS DEVICE IS NOT AVAILABLE
PLEASE CONTACT YOUR onsemi
REPRESENTATIVE FOR INFORMATION



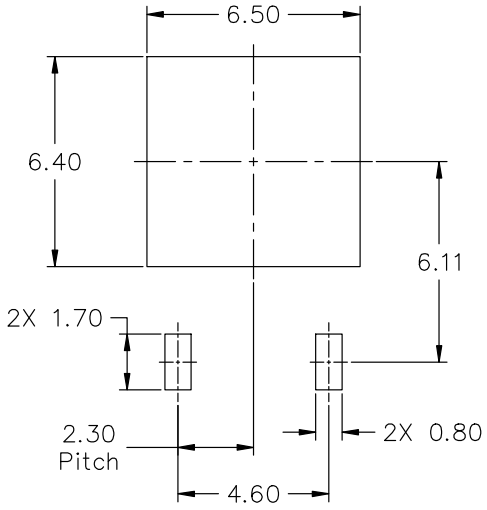
DPAK−4 6.50x7.30x1.50, 2.30P
CASE 369AM
ISSUE A

DATE 06 NOV 2025





NOTES:
1. DIMENSIONING AND TOLERANCING AS PER ASME−Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. PIN 2 IS IDLE PIN WITH ELECTRICAL DESIGNATION ONLY CARRIED.



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.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	1.35	1.50	1.65
A1	0.02	0.10	0.18
b	0.45	0.60	0.75
b1	0.65	0.80	0.95
c	0.30	0.40	0.50
D	6.50 BSC		
D1	4.60 REF		
D2	2.60 REF		
D3	0.40 REF		
E	9.30	9.50	9.70
E1	7.30 BSC		
E2	6.05 REF		
E3	4.60 REF		
e	2.30 BSC		
e1	4.60 BSC		
L	0.55	0.70	0.85
L1	1.55	1.70	1.85
L2	0.35	0.50	0.65
L3	0.35	0.50	0.65
TOLERANCE FORM & POSITION			
aaa	0.15		
bbb	0.20		
eee	0.10		

DOCUMENT NUMBER:	**98AON67243E**	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−4 6.50x7.30x1.50, 2.30P**	**PAGE 1 OF 1**

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.

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

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.