

AD40N60D5

40V N-Channel MOSFETs

datasheet

V_{DSS}	40V
$R_{DS(on)}(typ.)$	4.3m Ω
I_D	60A
P_D	55W

Outline

P PAK 5X6

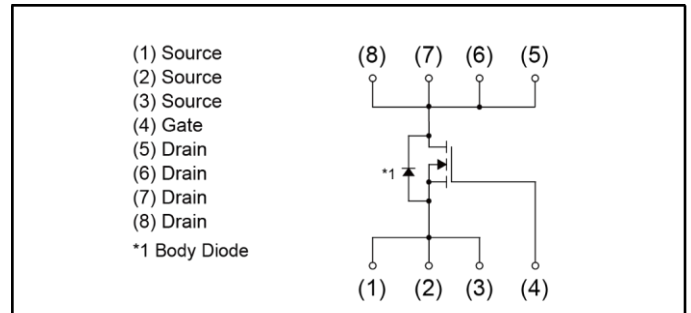


Features

- 40V, 60A, $R_{DS(ON)} = 4.3m\Omega @ V_{GS} = 10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- MB / VGA / Vcore
- POL Applications
- SMPS 2nd SR



Type	Reel size (mm)	330
	Tape width (mm)	12
	Basic ordering unit (pcs)	5000
	Taping code	D5
	Marking	AD40N60D5

Absolute Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	+20/-12	V
I_D	Drain Current – Continuous ($T_c=25^\circ\text{C}$)	60	A
	Drain Current – Continuous ($T_c=100^\circ\text{C}$)	38	A
I_{DM}	Drain Current – Pulsed ¹	220	A
EAS	Single Pulse Avalanche Energy ²	---	mJ
IAS	Single Pulse Avalanche Current ²	---	A
P_D	Power Dissipation ($T_c=25^\circ\text{C}$)	55	W
	Power Dissipation – Derate above 25°C	0.44	W/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	62	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	2.25	$^\circ\text{C}/\text{W}$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =40V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =32V, V _{GS} =0V, T _J =100°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =20V, V _{DS} =0V	---	---	100	nA

On Characteristics

R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =8A	---	4.3	5.6	mΩ
		V _{GS} =4.5V, I _D =6A	---	8	9	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	1.6	2.5	V
g _{fs}	Forward Trans conductance	V _{DS} =10V, I _S =1A	---	3	---	S

Dynamic and switching Characteristics

Q _g	Total Gate Charge ^{3,4}	V _{DS} =20V, V _{GS} =10V, I _D =25A	---	14	---	nC
Q _{gs}	Gate-Source Charge ^{3,4}		---	3	---	
Q _{gd}	Gate-Drain Charge ^{3,4}		---	6	---	
T _{d(on)}	Turn-On Delay Time ^{3,4}	V _{DD} =20V, V _{GS} =10V, R _G =6Ω I _D =25A	---	10	---	ns
T _r	Rise Time ^{3,4}		---	14	---	
T _{d(off)}	Turn-Off Delay Time ^{3,4}		---	28	---	
T _f	Fall Time ^{3,4}		---	20	---	
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, F=1MHz	---	810	---	pF
C _{oss}	Output Capacitance		---	350	---	
C _{rss}	Reverse Transfer Capacitance		---	20	---	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	1.5	---	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	60	A
I _{SM}	Pulsed Source Current		---	---	120	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V
T _{rr}	Reverse Recovery Time	V _R =30V, I _S =10A	---	---	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs T _J =25°C	---	---	---	nC

Note :

- 1.Repetitive Rating : Pulsed w idth limited by maximum junction temperature.
- 2.V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=---A.,R_G=25Ω,Starting T_J=25°C.
- 3.The data tested by pulsed , pulse w idth ≤ 300us , duty cycle ≤ 2%.
- 4.Essentially independent of operating temperature.

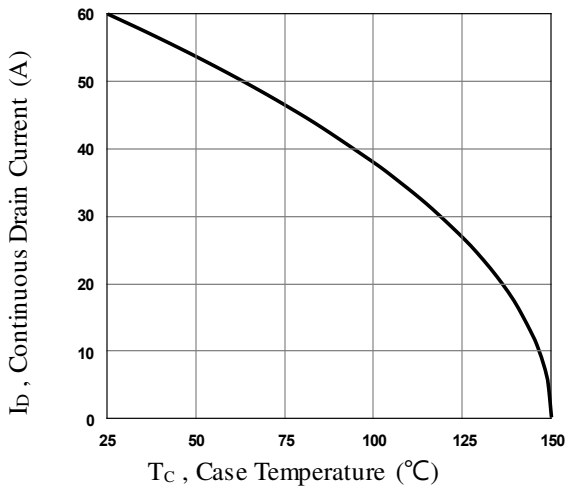


Fig.1 Continuous Drain Current vs. T_c

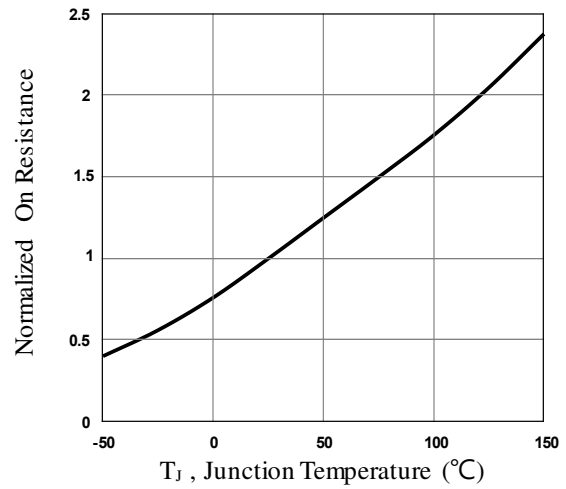


Fig.2 Normalized $R_{DS(on)}$ vs. T_j

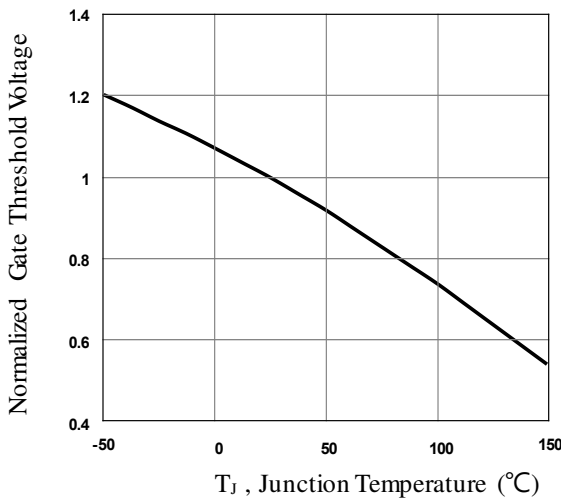


Fig.3 Normalized V_{th} vs. T_j

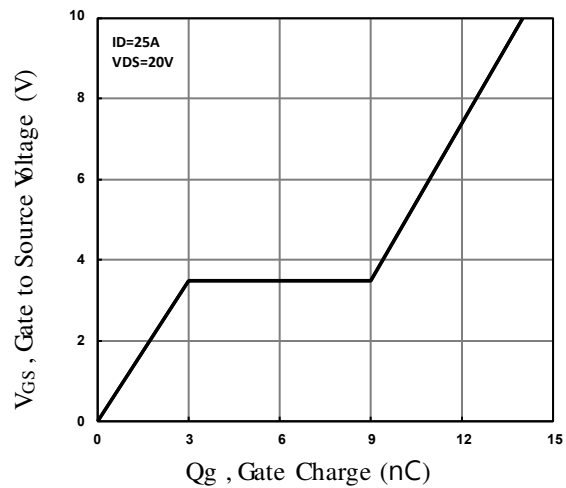


Fig.4 Gate Charge Waveform

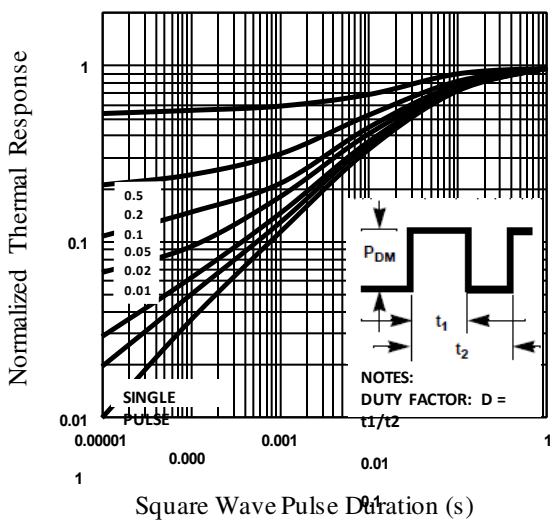


Fig.5 Normalized Transient Impedance

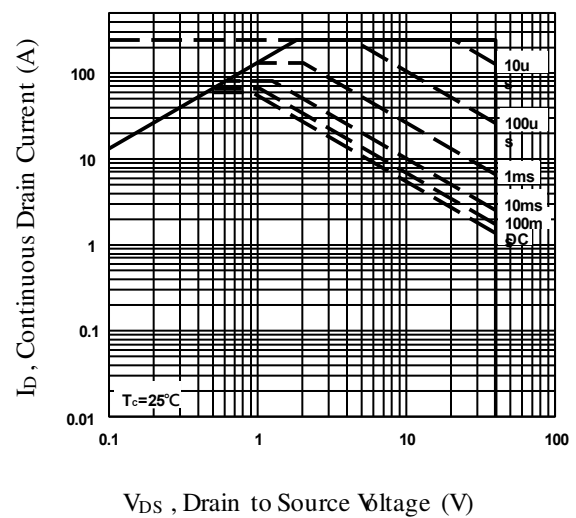


Fig.6 Maximum Safe Operation Area

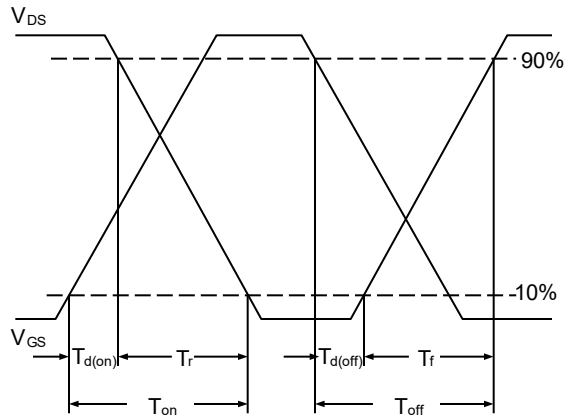


Fig.7 Switching Time Waveform

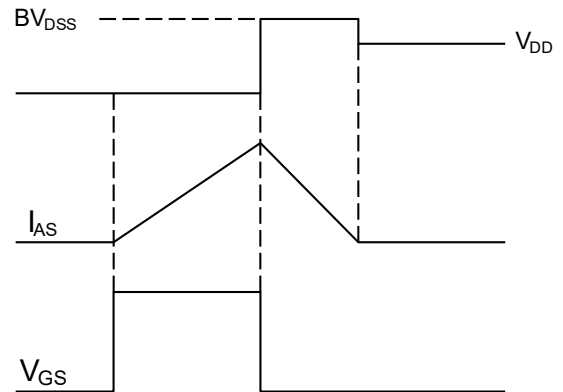
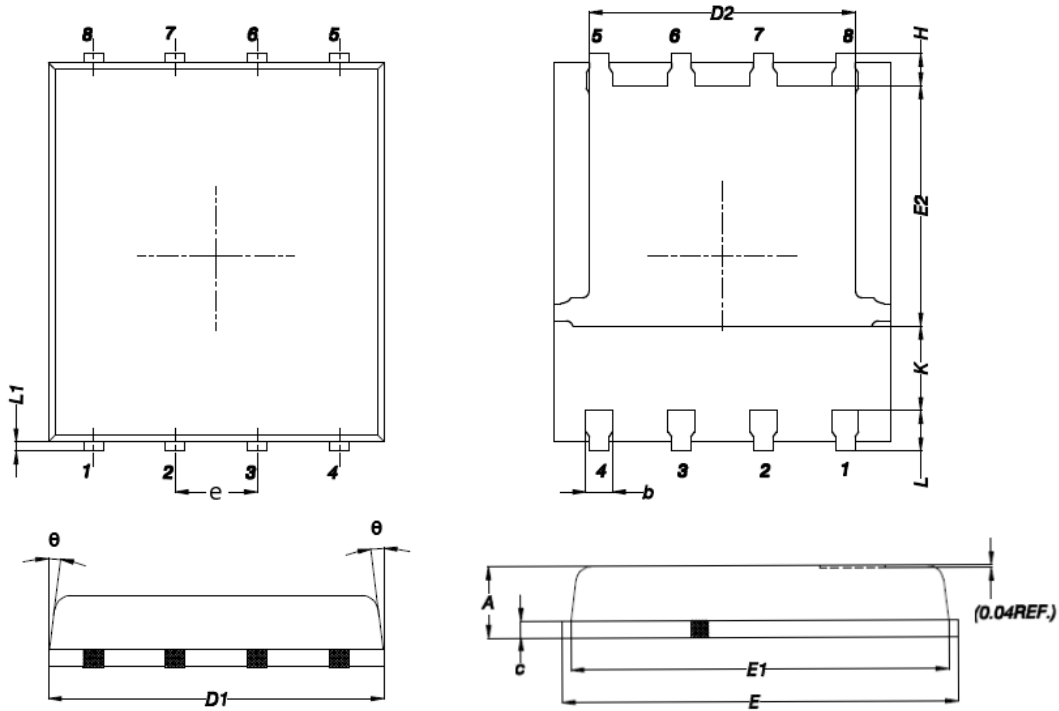


Fig.8 EAS Waveform

PPAK5x6 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.200	0.850	0.047	0.031
b	0.510	0.330	0.020	0.013
C	0.300	0.200	0.012	0.008
D1	5.400	4.800	0.212	0.189
D2	4.310	3.610	0.170	0.142
E	6.300	5.850	0.248	0.230
E1	5.960	5.450	0.235	0.215
E2	3.920	3.300	0.154	0.130
e	1.27BSC		0.05BSC	
H	0.650	0.380	0.026	0.015
K	---	1.100	---	0.043
L	0.710	0.380	0.028	0.015
L1	0.250	0.050	0.009	0.002
theta	12°	0°	12°	0°

单击下面可查看定价，库存，交付和生命周期等信息

[>>ADAMANT](#)