

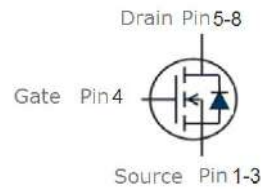
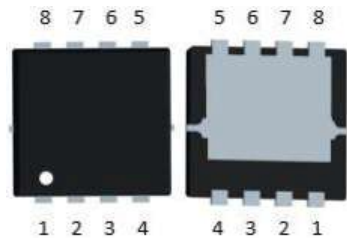


Product Summary

V_{DS}	40	V
$R_{DS(on), Typ @ V_{GS}=10V}$	6.9	m Ω
I_D	40	A

Features

- Enhancement mode
- Fast Switching and High efficiency
- 100% Avalanche test



PDFN3.3*3.3-8

Maximum ratings, at $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter	Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage	40	V
V_{GS}	Gate-Source voltage	± 20	V
I_S	Diode continuous forward current	$T_C = 25^\circ\text{C}$	40 A
I_D	Continuous drain current @ $V_{GS}=10V$	$T_C = 25^\circ\text{C}$	40 A
		$T_C = 100^\circ\text{C}$	34 A
I_{DM}	Pulse drain current tested ①	$T_C = 25^\circ\text{C}$	160 A
E_{AS}	Avalanche energy, single pulsed ②		20 mJ
P_D	Maximum power dissipation	$T_C = 25^\circ\text{C}$	30 W
		$T_C = 100^\circ\text{C}$	12 W
T_{STG, T_J}	Storage and Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	3.4	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	75	$^\circ\text{C/W}$

**Electrical Characteristics**

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T _j = 125°C)	V _{DS} =40V, V _{GS} =0V	--	--	100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance ④	V _{GS} =10V, I _D =20A	--	6.9	8.0	mΩ
		T _j = 100°C	--	7.8	--	mΩ
R _{DS(on)}	Drain-Source On-State Resistance ④	V _{GS} =4.5V, I _D =10A	--	9.5	11	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	--	794	--	pF
C _{oss}	Output Capacitance		--	308	--	pF
C _{rss}	Reverse Transfer Capacitance		--	27	--	pF
R _g	Gate Resistance	f=1MHz	0.2	1.6	5	Ω
Q _{g(10V)}	Total Gate Charge	V _{DS} =20V, I _D =20A, V _{GS} =10V	--	15	--	nC
Q _{g(4.5V)}	Total Gate Charge		--	7.7	--	nC
Q _{gs}	Gate-Source Charge		--	3	--	nC
Q _{gd}	Gate-Drain Charge		--	3.4	--	nC
Switching Characteristics						
T _{d(on)}	Turn-on Delay Time	V _{DD} =20V, I _D =20A, R _G =3Ω, V _{GS} =10V	--	5.6	--	ns
T _r	Turn-on Rise Time		--	47	--	ns
T _{d(off)}	Turn-Off Delay Time		--	15	--	ns
T _f	Turn-Off Fall Time		--	6.4	--	ns
Source- Drain Diode Characteristics @ T_j = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =20A, V _{GS} =0V	--	0.9	1.2	V
T _{rr}	Reverse Recovery Time	I _{sd} =20A, V _{GS} =0V	--	6.1	--	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs	--	0.6	--	nC

NOTE: ① Repetitive rating; pulse width limited by max junction temperature.

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.1mH, R_G = 25Ω, I_{AS} = 20A, V_{GS} = 10V. Part not recommended for use above this value

③ The power dissipation P_{DSM} is based on R_{θJA} and the maximum allowed junction temperature of 150°C.

④ Pulse width ≤ 380μs; duty cycle ≤ 2%

Typical Characteristics

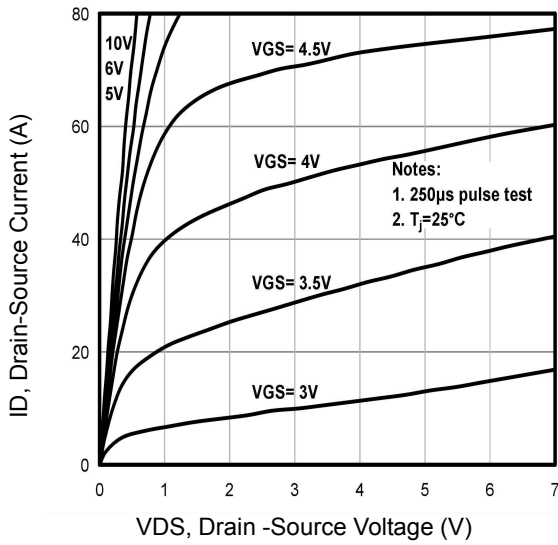


Fig1. Typical Output Characteristics

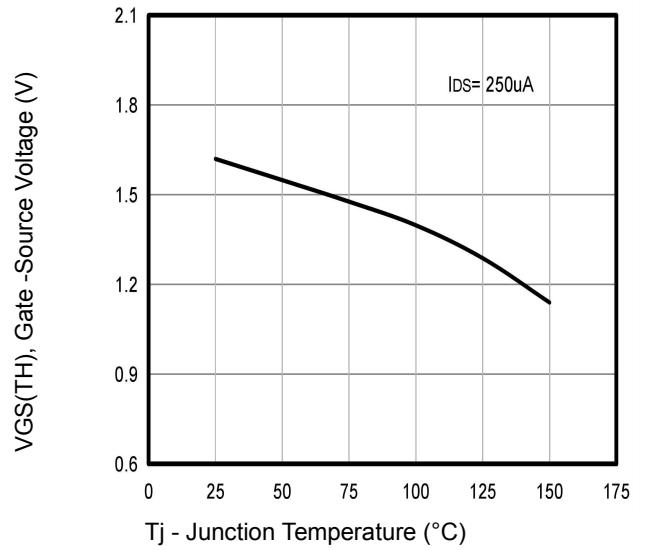


Fig2. V_{GS(TH)} Gate-Source Voltage Vs. T_j

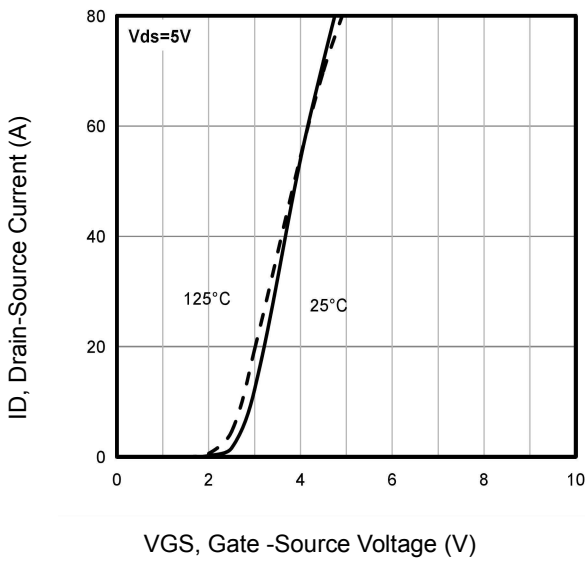


Fig3. Typical Transfer Characteristics

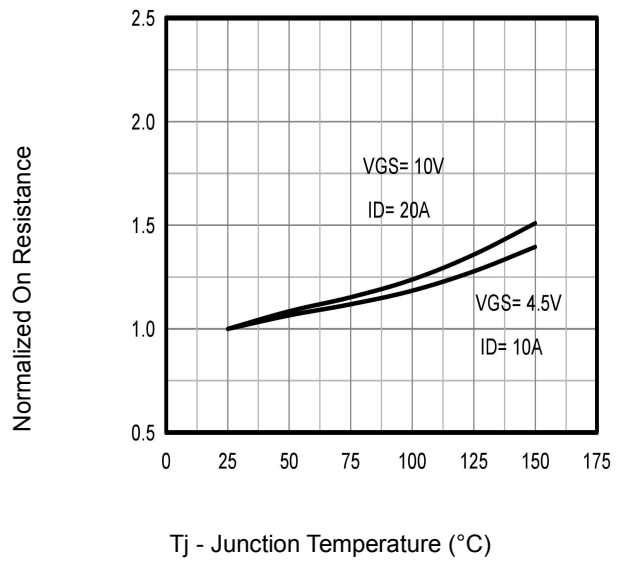


Fig4. Normalized On-Resistance Vs. T_j

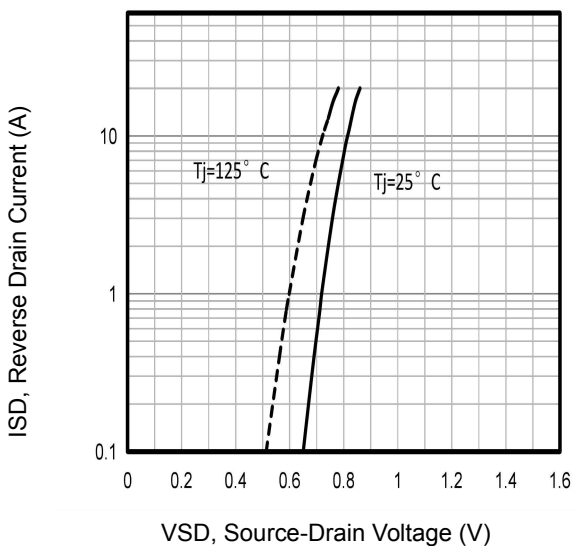


Fig5. Typical Source-Drain Diode Forward Voltage

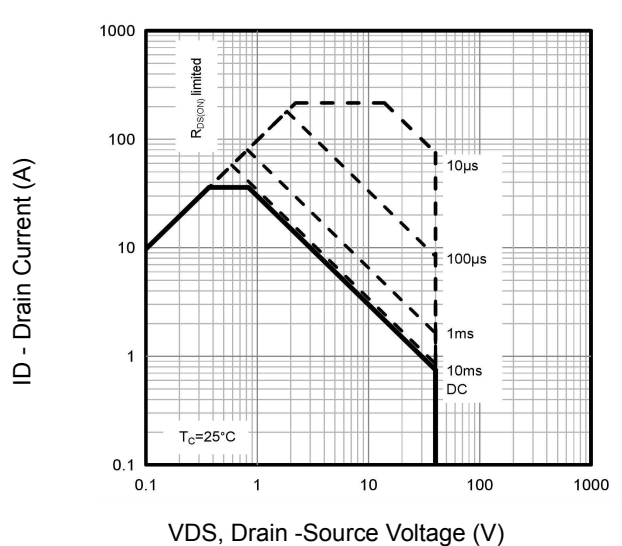


Fig6. Maximum Safe Operating Area



Typical Characteristics

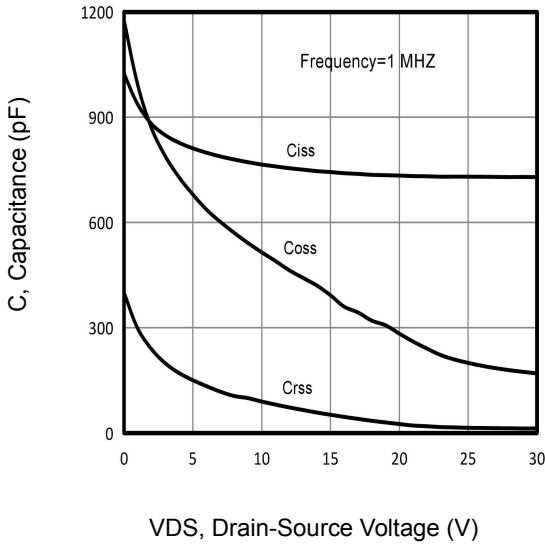


Fig7. Typical Capacitance Vs. Drain-Source Voltage

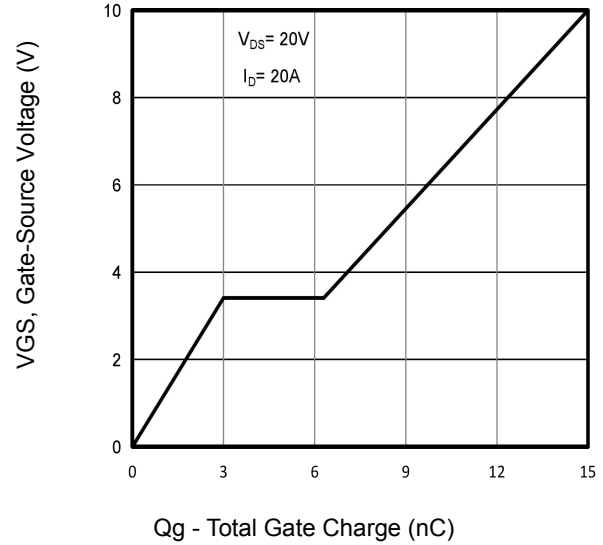


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

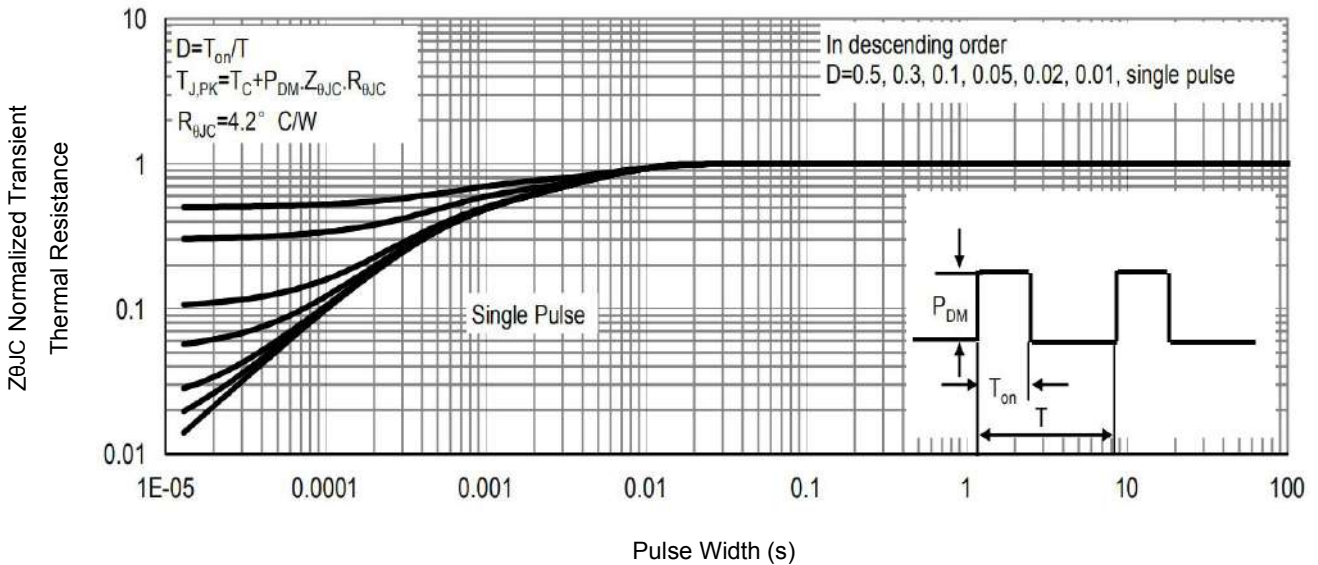


Fig9. Normalized Maximum Transient Thermal Impedance

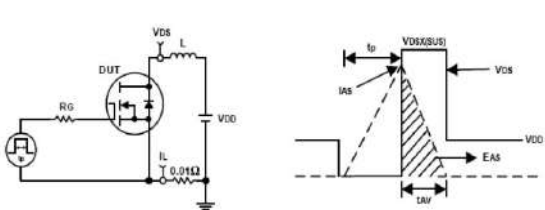


Fig10. Unclamped Inductive Test Circuit and waveforms

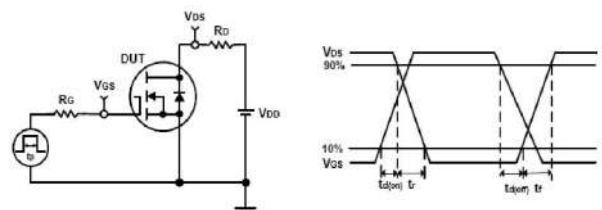
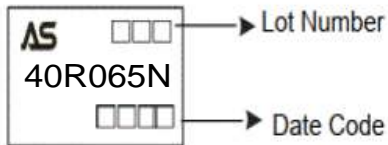


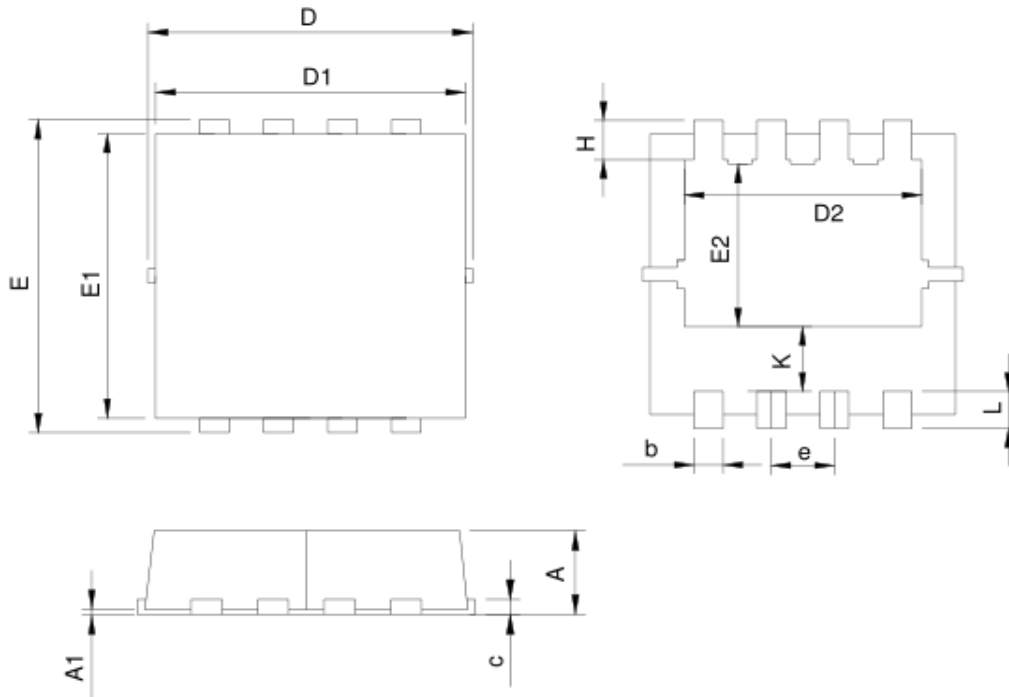
Fig11. Switching Time Test Circuit and waveforms

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM40R065NE-R	40R065N	PDFN3.3*3.3-8	Tape&Reel	5000/Reel

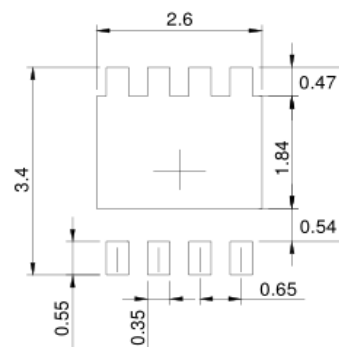
PACKAGE	MARKING
PDFN3.3x3.3-8	 <p>AS □□ → Lot Number 40R065N □□□□ → Date Code</p>

Dimensions(PDFN3.3x3.3-8)



SYMBOL	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm

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