Feature

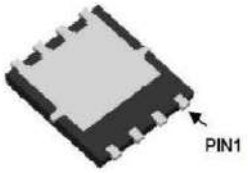
- Split Gate Trench Technology
- Low RDS(ON)
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

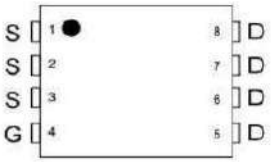
- Power Switching Application

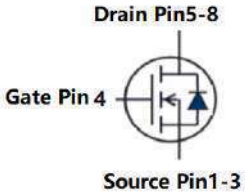
Product Summary

V_{DS}	40	V
$R_{DS(on),Typ}$@ V_{GS}=10 V	3.3	mΩ
I_D	75	A



DFN5*6-8





N-Channel

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	40	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	75	A
Continuous Drain Current[1]	T_C = 100℃	I_D	67	A
Pulsed Drain Current[2]		I_{DM}	300	A
Single Pulsed Avalanche Current[3]		I_{AS}	31	A
Single Pulsed Avalanche Energy[3]		E_{AS}	240	mJ
Power Dissipation[5]	T_C = 25℃	P_D	83	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	62	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	2.4	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 40V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.67	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A		3.3	4.5	mΩ
		V_{GS} = 4.5V, I_D = 10A		4.7	6.0	
Forward Transconductance	g_{FS}	V_{DS} = 10V, I_D = 10A		21		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz		1579		pF
Output Capacitance	C_{oss}			572		
Reverse Transfer Capacitance	C_{rss}			38.5		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		0.57		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 20V, V_{GS} = 10V, I_D = 20A		31		nC
Gate-source Charge	Q_{gs}			6		
Gate-drain Charge	Q_{gd}			3.8		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 20V, V_{GS} = 10V, R_L = 1Ω R_G = 3Ω		7		ns
Turn-on Rise Time	t_r			2.8		
Turn-off Delay Ttime	$t_{d(off)}$			24		
Turn-off Fall Time	t_f			3.9		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 10A		0.73	1.2	V

Notes :

1.The maximum current rating is limited by package.And device mounted on a large heatsink

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

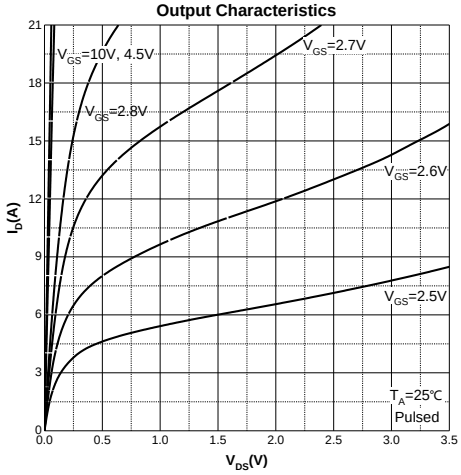
3.E_{AS} condition: V_{DD} = 20V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

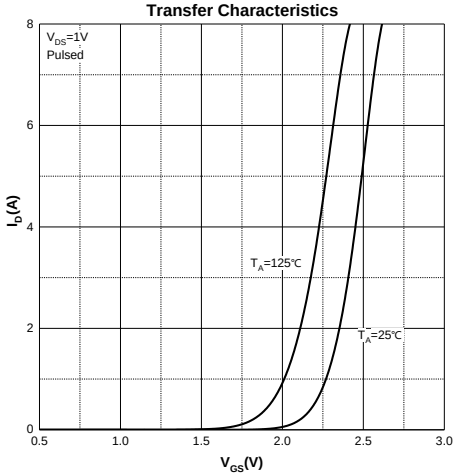
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

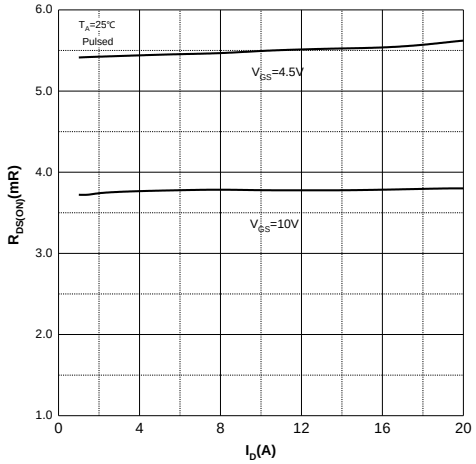
Output Characteristics



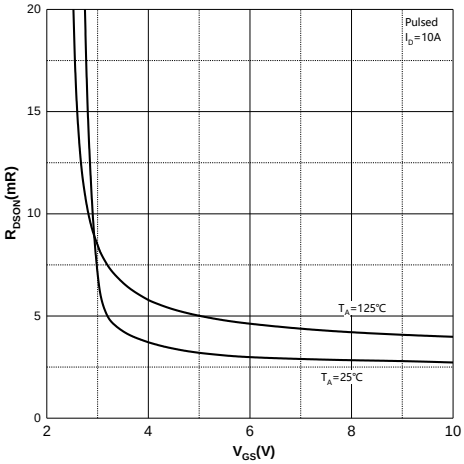
Transfer Characteristics



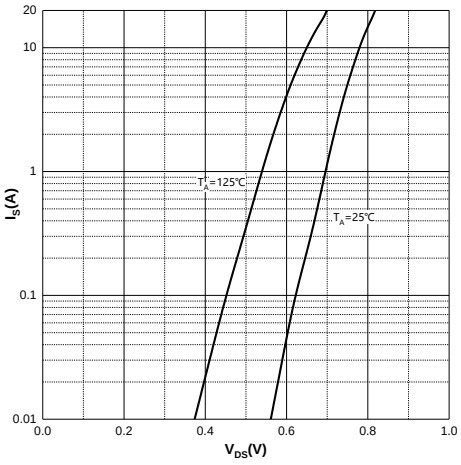
$R_{DS(ON)}$ vs I_D



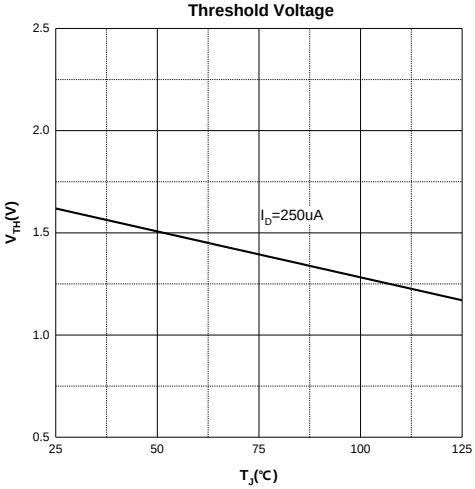
$R_{DS(ON)}$ vs V_{GS}

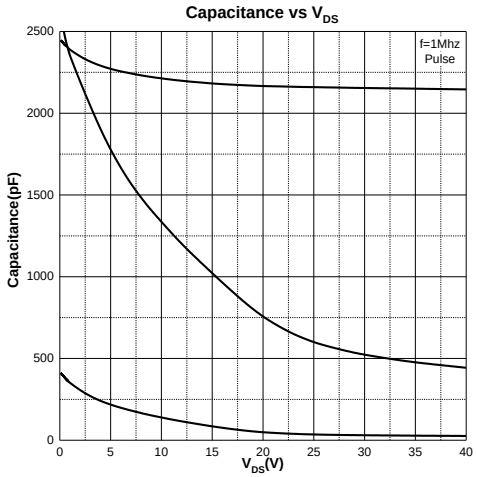


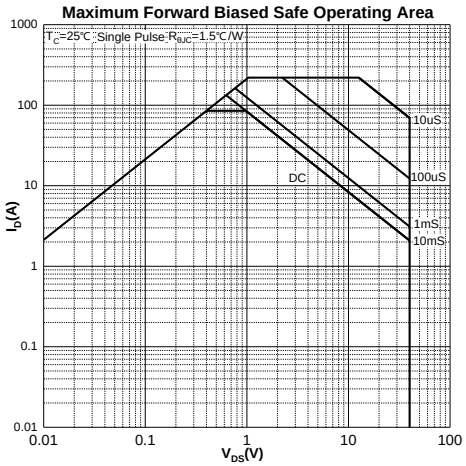
I_S vs V_{SD}

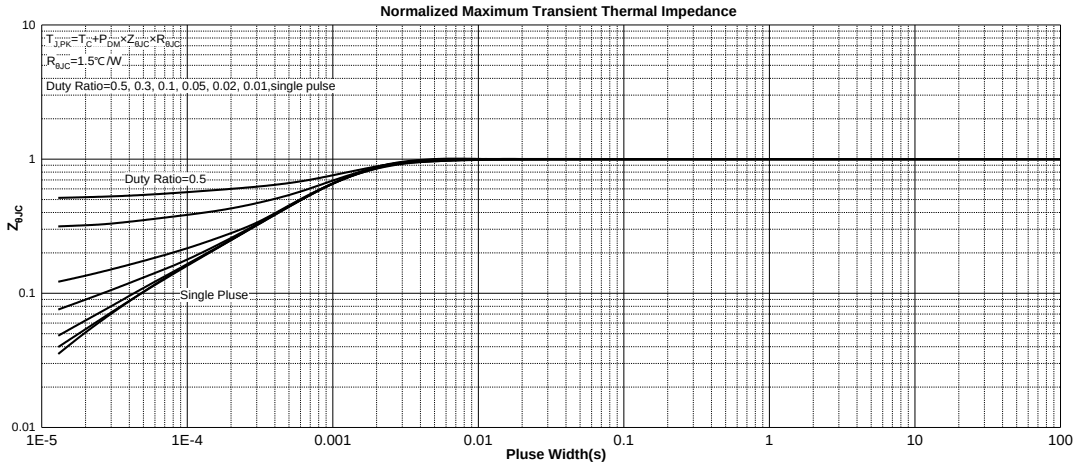


Threshold Voltage



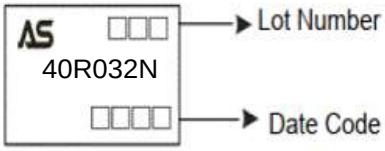

Capacitance vs V_{DS}
f=1Mhz
Pulse
Capacitance(pF)
2500
2000
1500
1000
500
0
0 5 10 15 20 25 30 35 40
V_{DS}(V)


Maximum Forward Biased Safe Operating Area
T_C=25℃, Single Pulse $R_{θJC}$=1.5℃/W
10uS
100uS
DC
1mS
10mS
I_D(A)
1000
100
10
1
0.1
0.01
0.01 0.1 1 10 100
V_{DS}(V)

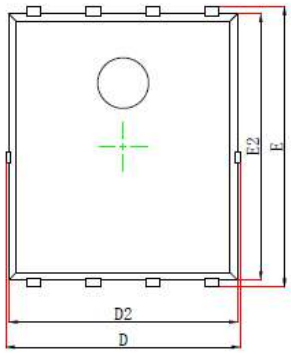

Normalized Maximum Transient Thermal Impedance
$T_{J,Pk}$=T_C+P_{DM}×$Z_{θJC}$×$R_{θJC}$
$R_{θJC}$=1.5℃/W
Duty Ratio=0.5, 0.3, 0.1, 0.05, 0.02, 0.01,single pulse
Duty Ratio=0.5
Single Pluse
$Z_{θJC}$
10
1
0.1
0.01
1E-5 1E-4 0.001 0.01 0.1 1 10 100
Pluse Width(s)

Ordering and Marking Information

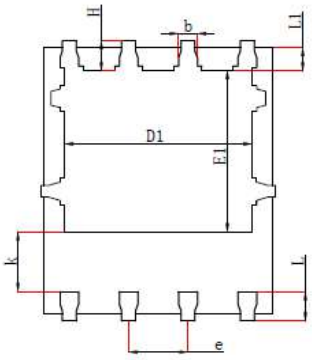
Ordering Device No.	Marking	Package	Packing	Quantity
ASDM40R032NQ-R	40R032N	DFN5*6-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
DFN5*6-8	

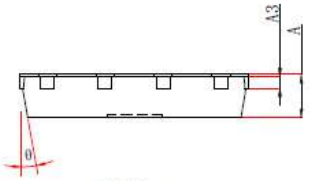
DFN5x6_P, 8 Leads



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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