

General Features

- Excellent gate charge x $R_{DS(on)}$ product(FOM)
- Very low on-resistance $R_{DS(on)}$
- 150 °C operating temperature
- Pb-free lead plating

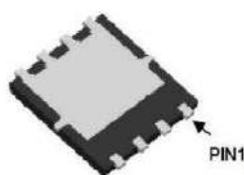
Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

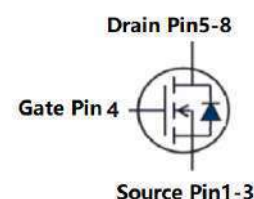
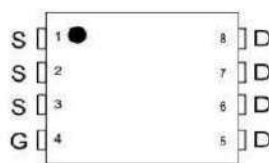
Product Summary



V_{DS}	60	V
$R_{DS(on), Typ @ V_{GS}=10 V}$	2.3	mΩ
I_D	150	A



DFN5*6-8



N-Channel

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous (Silicon Limited)	I_D	150	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)	$I_D (100^{\circ}\text{C})$	98	A
Pulsed Drain Current	I_{DM}	450	A
Maximum Power Dissipation	P_D	100	W
Derating factor		0.8	W/ $^{\circ}\text{C}$
Single pulse avalanche energy ^(Note 5)	E_{AS}	552	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^{\circ}\text{C}$

Thermal Characteristic

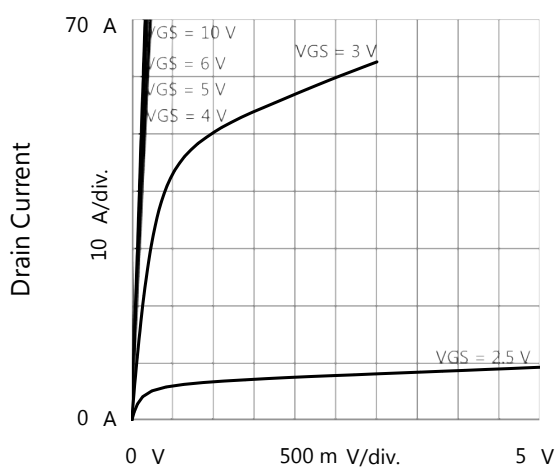
Thermal Resistance, Junction-to-Case ^(Note 2)	$R_{\theta JC}$	1.47	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$

Electrical Characteristics (T_C=25°C unless otherwise noted)

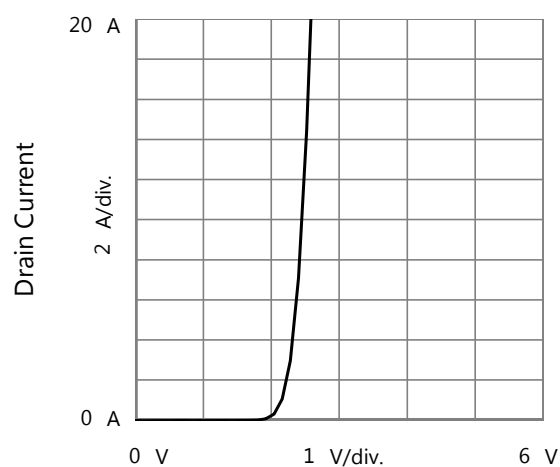
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	2.3	3.0	mΩ
		V _{GS} =4.5V, I _D =15A	-	2.8	3.8	mΩ
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =20A	-	-	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, F=1.0MHz	-	3600	-	PF
Output Capacitance	C _{oss}		-	1270	-	PF
Reverse Transfer Capacitance	C _{rss}		-	5.0	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =45A V _{GS} =10V, R _G =4.7Ω	-	11	-	nS
Turn-on Rise Time	t _r		-	5	-	nS
Turn-Off Delay Time	t _{d(off)}		-	56	-	nS
Turn-Off Fall Time	t _f		-	12	-	nS
Total Gate Charge	Q _g	V _{DS} =30V, I _D =60A , V _{GS} =10V	-	68.9		nC
Gate-Source Charge	Q _{gs}		-	37.2		nC
Gate-Drain Charge	Q _{gd}		-	7.5		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =45A	-	-	1.2	V
Diode Forward Current ^(Note 2)	I _S		-	-	150	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = I _S di/dt = 100A/μs ^(Note3)	-	52		nS
Reverse Recovery Charge	Q _{rr}		-	68		nC

Notes:

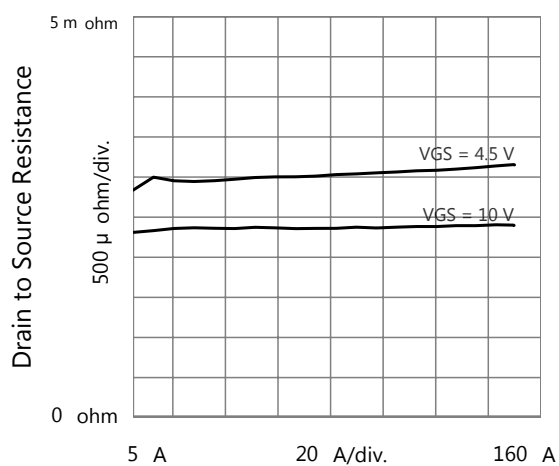
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω

Output Characteristics

Drain to Source Voltage

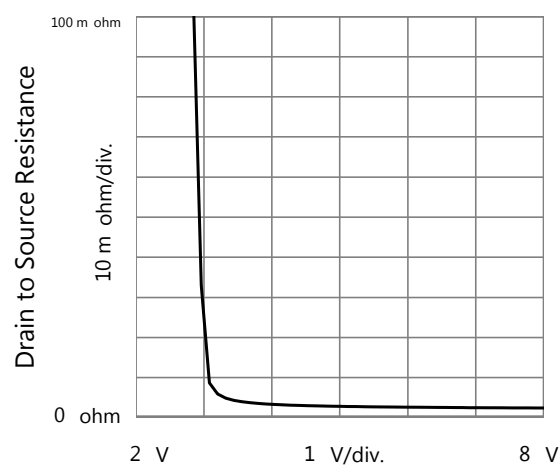
Drain to Source Resistance vs. Drain Current

Transfer Characteristics

Gate to Source Voltage

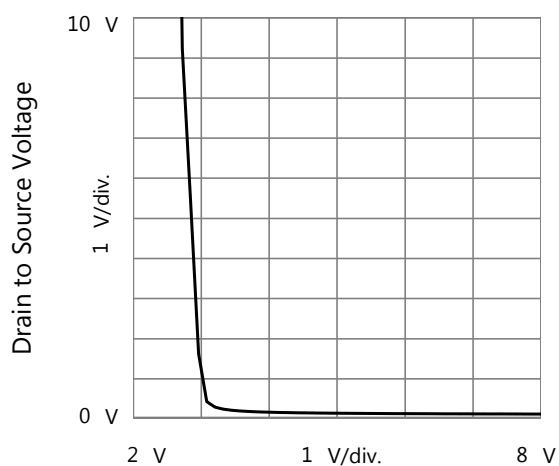
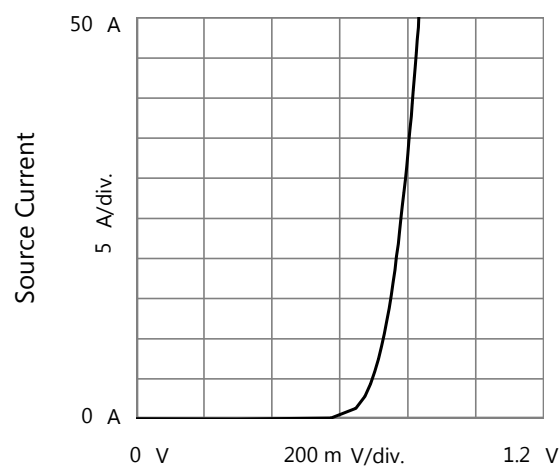
Drain to Source Resistance vs. Gate to Source Voltage

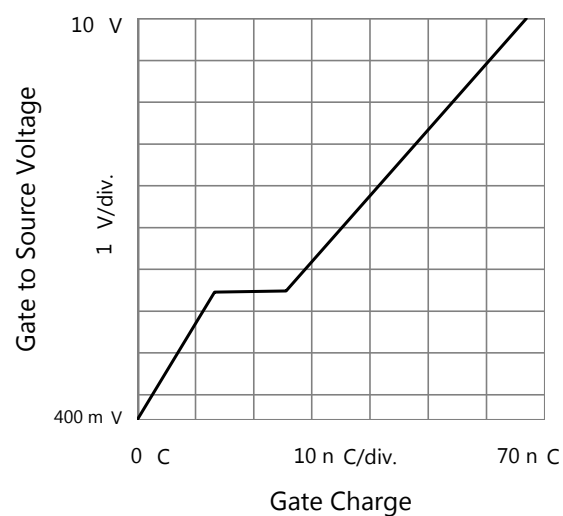
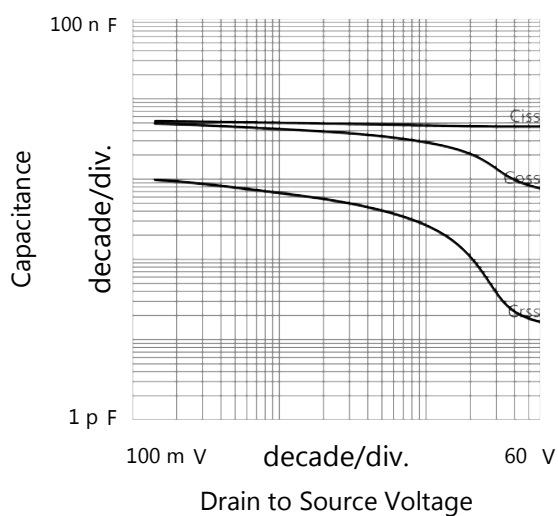

Drain Current

Drain to Source Voltage vs. Gate to Source Voltage


Gate to Source Voltage

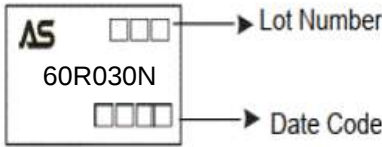
Body Diode Forward Characteristics

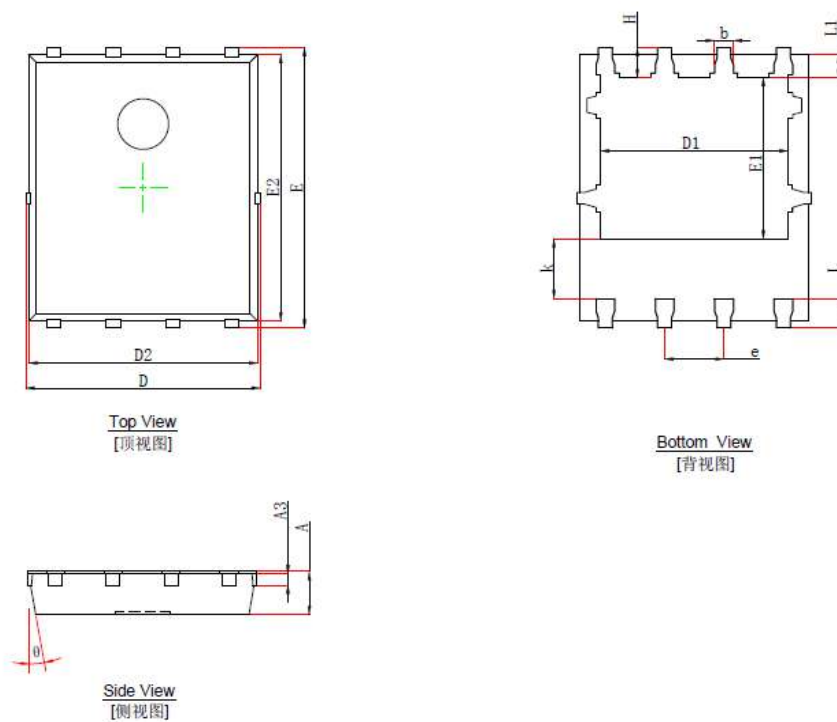

Gate to Source Voltage

Source to Drain Voltage



Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM60R030NQ-R	60R030N	DFN5*6-8	Tape&Reel	4000/Reel

PACKAGE	MARKING
DFN5*6-8	 AS □□□□ → Lot Number 60R030N □□□□ → Date Code

DFN5x6_P, 8 Leads


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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