MSC4029N

V1.1 Datasheet

N+P 40V MOSFET

FEATURES

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Application

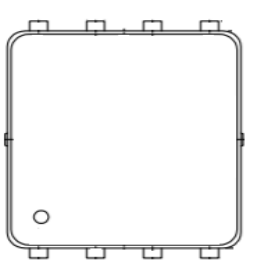
- Portable Devices
- Consumer Electronics

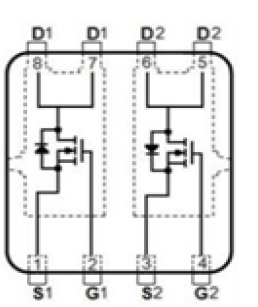
Mechanical

- Case:DFN5060 Package

PRODUCTY SUMMARY		
V_{DS}	RDS(on) m(Ω) Max	
40	19	@V_{GS}=10.0V
	26	@V_{GS}=4.5V
-40	31	@V_{GS}=-10.0V
	37	@V_{GS}=-4.5V

DFN5060





Packing Information

Package	Packing
DFN5060	3K/13" Reel

Maximum Ratings (T_A=25°C unless otherwise specified)				
Parameter	Symbol	Limit		Unit
		N-Channel	P-Channel	
Gate-Source Voltage	V_{DS}	40	-40	V
Gate-Source Voltage	V_{GS}	±20	±20	A
Continuous Drain Current [1)]	I_{DSM}	17	-13	A
Continuous Drain Current [4)]	I_D	68	-52	A
Continuous Drain Current [5)]	I_{DM}	101	-80	A
Maximum Power Dissipation	P_D	6	6	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	-55 to 150	°C

Typical Thermal Resistance			
Parameter	Symbol	Limit	Unit
Junction-to-Ambient Thermal Resistance [3)]	$R_{\theta JA}$	34	°C/W

Note:
1. Pulse width<300us, Duty cycle<2%.
2. Fused current that based on wire numbers and diameter.
3. Guaranteed by design, not subject to production testing.
4. The maximum current rating is package limited.
5. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keepinitial T_J =25°C.

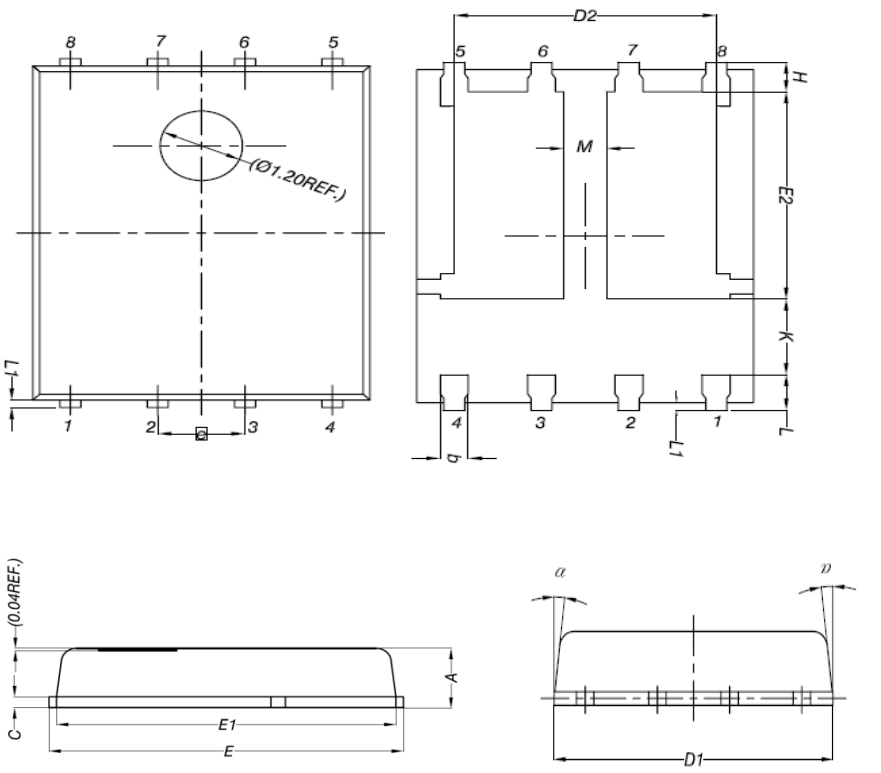
Electrical Characteristics (TA = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
N-Channel Static						
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D=250uA	40	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1.0	1.6	2.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10.0V, I_D=17A	-	15	19	mΩ
		V_{GS}=4.5V, I_D=14A	-	20	26	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V	-	-	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I_S	-	-	-	1.2	A
Diode Forward Voltage	V_{SD}	I_S=1.0A, V_{GS}=0V	-	-	1.5	V

Electrical Characteristics (T_A = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
P-Channel Static						
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D=-250uA	-40	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1.0	-	-3.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=-10.0V, I_D=-13A	-	26	31	mΩ
		V_{GS}=-4.5V, I_D=-12A	-	31	37	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V	-	-	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I_S	-	-	-	-1.2	A
Diode Forward Voltage	V_{SD}	I_S=-1.0A, V_{GS}=0V	-	-	-1.5	V

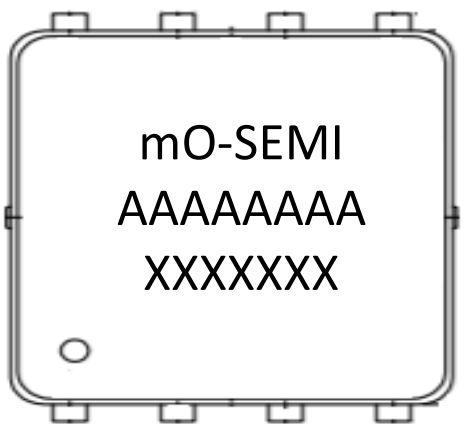
Note:
1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
4. The maximum current rating is package limited.
5. R_{QJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 inch2 with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

Package Outline Dimensions (inches and millimeters)

DFN5060				
SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.90	1.10	0.035	0.043
b	0.33	0.51	0.013	0.020
C	0.20	0.30	0.008	0.012
D1	4.80	5.00	0.189	0.197
D2	3.61	3.96	0.142	0.156
E	5.90	6.10	0.232	0.240
E1	5.70	5.80	0.224	0.228
E2	3.38	3.78	0.133	0.149
e	1.27bsc			
H	0.41	0.61	0.016	0.024
K	1.100	-	0.043	-
L	0.51	0.71	0.020	0.028
L1	0.06	0.20	0.002	0.008
M	0.50	-	0.020	-
α	0°	12°	-	-



Marking Information



First line = Company name

AAAAAAAA = Product number

XXXXXXX = Tracking number

Fourth line = Pin1 Point