

#### N+P-Channel 40V MOSFET

#### FEATURES

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

#### Application

- Portable Devices
- Consumer Electronics

#### Mechanical

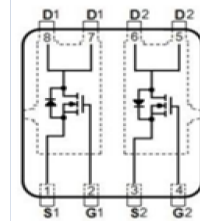
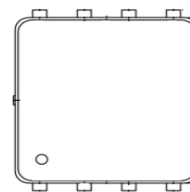
- Case:DFN5060 Package

#### Packing Information

Package	Packing
DFN5060	3K/13" Reel

PRODUCTY SUMMARY		
$V_{DS}$	RDS(on) m( $\Omega$ ) Max	
40	31	@ $V_{GS}=10V$
	48	@ $V_{GS}=4.5V$
-40	45	@ $V_{GS}=-10V$
	63	@ $V_{GS}=-4.5V$

DFN5060



Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise specified)				
Parameter	Symbol	Limit		Unit
		N-Channel	P-Channel	
Gate-Source Voltage	$V_{DS}$	40	-40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	$\pm 20$	A
Continuous Drain Current <sup>1)</sup>	$I_{DSM}$	14	-11	A
Continuous Drain Current <sup>4)</sup>	$I_D$	56	-44	A
Continuous Drain Current <sup>5)</sup>	$I_{DM}$	79	-66	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	$^{\circ}C$

Typical Thermal Resistance			
Parameter	Symbol	Limit	Unit
Junction-to-Ambient Thermal Resistance <sup>3)</sup>	$R_{\theta JA}$	34	$^{\circ}C/W$

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  $T_{J(MAX)}=150^{\circ}C$ . Ratings are based on low frequency and duty cycles to keep initial  $T_J=25^{\circ}C$ .

**Electrical Characteristics (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)**

Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
N-Channel Static						
Drain-Source Breakdown Voltage	B <sub>VDSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	40	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.0	1.6	2.0	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10.0V, I <sub>D</sub> =13A	-	25	31	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =11A	-	39	48	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =40V, V <sub>GS</sub> =0V	-	-	1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	± 100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I <sub>S</sub>	-	-	-	1.2	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.0A, V <sub>GS</sub> =0V	-	-	1.5	V

**Electrical Characteristics (T<sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)**

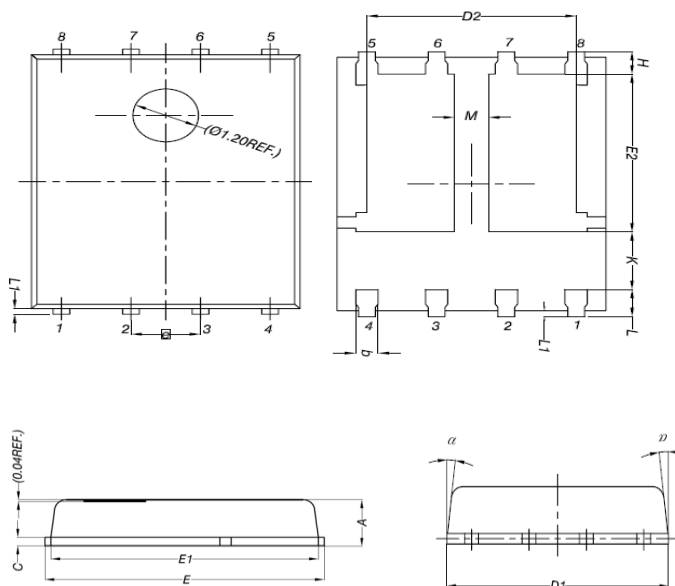
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
P-Channel Static						
Drain-Source Breakdown Voltage	B <sub>VDSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-40	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-1.0	-	-3.0	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10.0V, I <sub>D</sub> =-11A	-	37	45	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-9A	-	51	63	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-40V, V <sub>GS</sub> =0V	-		1.0	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	± 100	nA
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	I <sub>S</sub>	-	-	-	-1.2	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1.0A, V <sub>GS</sub> =0V	-	-	-1.5	V

Note:

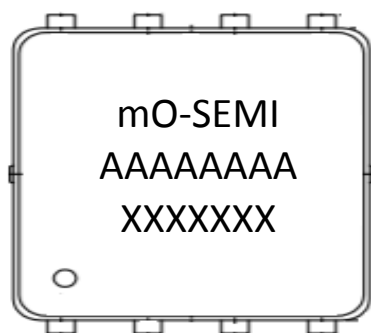
1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C. Ratings are based on low frequency and duty cycles to keep initial T<sub>J</sub>=25°C.
4. The maximum current rating is package limited.
5. R<sub>QJA</sub> 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 inch<sup>2</sup> 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

AAAAAAA = Product number

XXXXXXX = Tracking number

Fourth line = Pin1 Point

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