

### P Channel -20V (DS) MOSFET

#### FEATURES

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

PRODUCTY SUMMARY		
$V_{DS}$	$R_{DS(on)}$ (m $\Omega$ )	
-20	16	@ $V_{GS}=-4.5V$
	19	@ $V_{GS}=-2.5V$

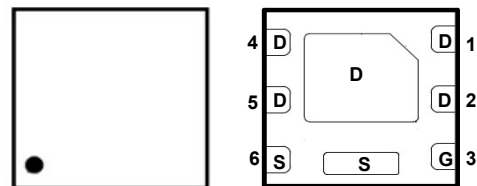
#### Application

- Portable Devices
- Consumer Electronics

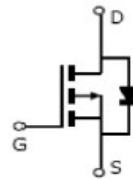
#### Mechanical

- Case: DFN2020 Package

DFN2020 Pin Configuration (Top View)



Internal Schematic Diagram



#### Packing Information

Package	Packing
DFN2020	3Kpcs/ 7"Reel

#### Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Limit	Unit
DrainSource Voltage	$V_{DS}$	-20	V
GateSource Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1)</sup>	$I_D$	-12	A
Maximum Power Dissipation	$P_D$	1.9	W
Pulsed Drain Current <sup>2)</sup>	$I_{DM}$	-48	A
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	55~150	$^{\circ}C$

#### Typical Thermal Resistance

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

Note:

1. Fused current that based on wire numbers and diameter
2. Repetitive Rating: Pulse width limited by the maximum junction temperature
3. 1-in2 2oz Cu PCB board

Electrical Characteristics (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
DrainSource Breakdown Voltage	B <sub>VDSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =-250uA	-20	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.50	-0.70	-1.00	V
DrainSource OnState Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-12A	-	15	16	mΩ
DrainSource OnState Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-10A	-	18	19	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>GS</sub> =-20V, I <sub>D</sub> =-1A	-	-	1	uA
GateSource Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±100	nA

DrainSource Diode						
Maximum Continuous Body Diode Forward Current	$I_S$	$V_G = V_D = 0V$ , Force Current	-	-	-1.2	A
Diode Forward Voltage	$V_{SD}$	$I_S = -1.0A, V_{GS} = 0V$	-	-	-1.5	V

**NOTES :**

1. Pulse width < 300 $\mu s$ , Duty cycle < 2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature  $T_J(\text{MAX}) = 150^\circ\text{C}$ . Ratings are based on low frequency and duty cycles to keep initial  $T_J = 25^\circ\text{C}$ .
4. The maximum current rating is package limited.
5. RQJA 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)**

DFN2020				
SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.70	0.80	0.39	0.41

Technical drawing of the DFN2020 package showing top, side, and bottom views with dimensions.

**Top View:**

- Overall width:  $2.000 \pm 0.050$  (PACKAGE OUTLINE)
- Overall height:  $2.000 \pm 0.050$  (PACKAGE OUTLINE)
- Pin 1 location: PIN #1 DOT BY MARKING
- Internal marking: T/DFN (2x2) -06L

**Side View:**

- Package height:  $0.263 \pm 0.0080$
- Lead height:  $0.030 - 0.050$

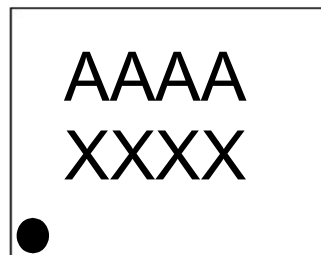
**Bottom View:**

- Lead width:  $0.950 \pm 0.100$  (Exp. LEADS)
- Lead height:  $0.200$  MIN
- Lead width:  $0.790 \pm 0.050$
- Lead width:  $0.250$  MIN
- Lead width:  $0.150$  MIN
- Lead width:  $1.150 \pm 0.100$  (Exp. LEADS)
- Lead width:  $0.250 \pm 0.050$
- Lead width:  $0.650 \pm 0.100$
- Lead width:  $0.300 \pm 0.050$
- Pin 1 location: PIN #1 ID  $0.300 \times 0.300$

**SIDE VIEW**

**BOTTOM VIEW**

**Marking Information**



AAAA = Device name

XXXX = Tracking number

● Pin1 Dot

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