

### N-Channel 30V MOSFET

#### FEATURES

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

#### Application

- Portable Devices
- Consumer Electronics

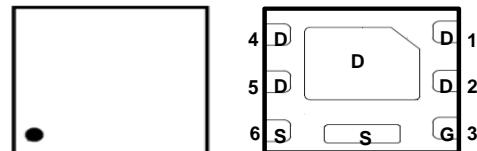
#### Mechanical

- Case: DFN2020 Package

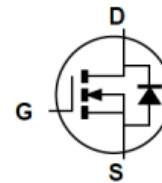
#### PRODUCTY SUMMARY

$V_{DS}$	$R_{DS(on)}$ (m $\Omega$ ) Max	
30	12	@ $V_{GS}=10.0V$
	17	@ $V_{GS}=4.5V$

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	$V_{DS}$	30	V
GateSource Voltage	$V_{GS}$	$\pm 20$	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 to 150	$^{\circ}C$

#### Typical Thermal Resistance

Parameter	Symbol	Limit	Unit
JunctiontoAmbient Thermal Resistance <sup>3)</sup>	$R_{\theta JA}$	62.5	$^{\circ}C/W$

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	30	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.00	1.20	3.00	V
DrainSource OnState Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =12A	-	7	12	mΩ
DrainSource OnState Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A	-	10	17	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	-	-	1	uA
GateSource Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA

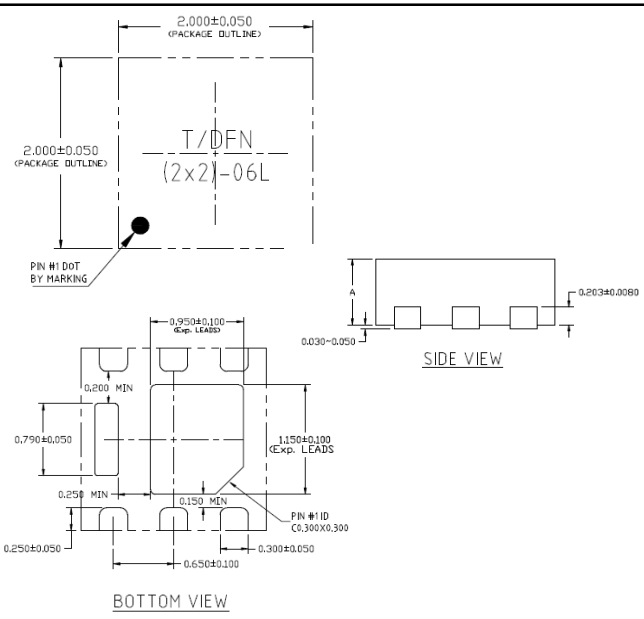
DrainSource Diode						
Maximum Continuous Body Diode Forward Current	I <sub>S</sub>	-	-	-	1.2	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1.0A, V <sub>GS</sub> =0V	-	-	1.5	V

**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)

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



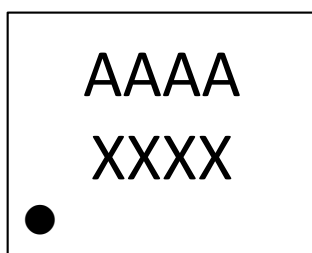
Technical drawing of the DFN2020 package showing three views: Top View, Side View, and Bottom View.

**Top View:** Shows a square package outline with dimensions  $2.000 \pm 0.050$  (PACKAGE OUTLINE) for both width and height. The center is marked with a dashed line and the text "T/DFN (2x2)-06L". A dot is labeled "PIN #1 DOT BY MARKING".

**Side View:** Shows the package profile with a maximum height of  $0.203 \pm 0.0080$  and a standoff height of  $0.030 \sim 0.050$ . The label "SIDE VIEW" is present.

**Bottom View:** Shows the lead configuration with various dimensions:  $0.790 \pm 0.050$  (lead length),  $0.200$  MIN (lead thickness),  $0.950 \pm 0.100$  (Exp. LEADS),  $1.150 \pm 0.100$  (Exp. LEADS),  $0.250$  MIN (lead width),  $0.150$  MIN (lead width),  $0.250 \pm 0.050$  (lead width),  $0.650 \pm 0.100$  (lead width),  $0.300 \pm 0.050$  (lead width), and  $0.300 \pm 0.050$  (lead width). A pin is labeled "PIN #110 (0.300x0.300)". The label "BOTTOM VIEW" is present.

Marking Information



AAAA = Product number

XXXX = Tracking number

Third line = Pin1 Point

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