

**N-Channel 20-V (D-S) MOSFET**
**FEATURES**

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

**Application**

- Portable Devices
- Consumer Electronics

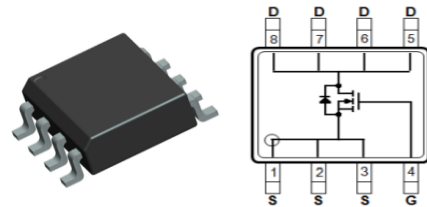
**Mechanical**

- Case: SOP-8-Single Package

**Packing Information**

Package	Packing
SOP-8-Single	3K/13" Reel

PRODUCTY SUMMARY			
$V_{DS}$	$R_{DS(on)}$ m( $\Omega$ )		$I_D$ (A)
20	12	Rdson @4.5V	11.6
	15	Rdson @2.5V	10.0

**SOP-8-Single**

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1)</sup>	$I_D$	11.6	A
Maximum Power Dissipation	$P_D$	1.8	W
Pulsed Drain Current <sup>2)</sup>	$I_{DM}$	46.4	A
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}\text{C}$

**Typical Thermal Resistance**

Parameter	Symbol	Limit	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	110	$^{\circ}\text{C/W}$

**Note:**

$R_{\theta JA}$  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 FR-4 with 2oz. square pad of copper

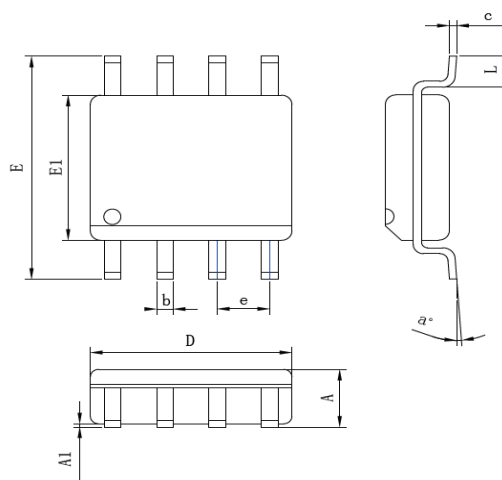
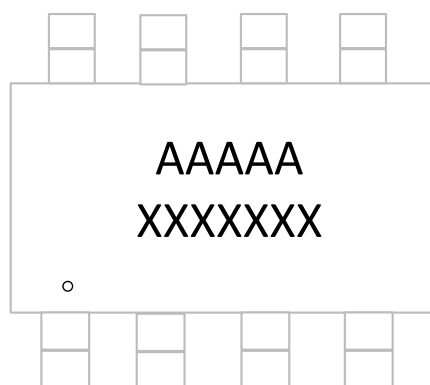
Electrical Characteristics (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	B <sub>VDSS</sub>	VGS = 0V, ID =250uA	20			V
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250uA	0.40	0.63	1.00	V
Drain-Source On-State Resistance	RDS(on)	VGS=4.5V, ID=11.6A	-	10	12	mΩ
		VGS=2.5V, ID=10.0A	-	12	15	mΩ
Zero Gate Voltage Drain Current	IDSS	VDS=20V, VGS=0V			1.0	uA
Gate-Source Leakage Current	IGSS	VGS=±12V, VDS=0V			±100	nA
Dynamic <sup>3)</sup>						
Total Gate Charge	Qg	VDS=10V, ID=11A, VGS=4.5V	-	16.0	25.60	nC
Gate-Source Charge	Qgs		-	2.5	-	nC
Gate-Drain Charge	Qgd		-	4.5	-	nC
Input Capacitance	Ciss	VDS=10V, VGS=0V, f=1.0MHZ	-	1400	2240	pF
Output Capacitance	Coss		-	170	-	pF
Reverse Transfer Capacitance	Crss		-	135	-	pF
Switching						
Turn-On Delay Time	td(on)	VDS=11V, ID=1A, VGS=5V,RG=3.3Ω	-	10	-	ns
Turn-On Rise Time	tr		-	13	-	ns
Turn-Off Delay Time	td(off)		-	28	-	ns
Turn-Off Fall Time	tf		-	7	-	ns
Drain-Source Diode						
Maximum Continuous Body Diode Forward Current	IS	VG=VD=0V , Force Current	-	-	1.2	A
Diode Forward Voltage	VSD	IS=1.0A, VGS=0V	-	-	1.5	V

**NOTES :**

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</sub>(MAX)=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. 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)**

<b>SOP-8</b>				
SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	-	1.75		0.069
A1	0.10	0.23	0.004	0.009
b	0.35	0.48	0.014	0.019
c	0.19	0.25	0.007	0.010
D	4.70	5.10	0.185	0.201
E	5.80	6.20	0.228	0.244
E1	3.70	4.10	0.146	0.161
e	1.27bsc			
L	0.50	0.80	0.020	0.031
a°	0°	8°	0°	8°


**Marking Information**


First line:

AAAAAA = Product number

XXXXXXX = Tracking number

Third line: Gate Pin Point

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