

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

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

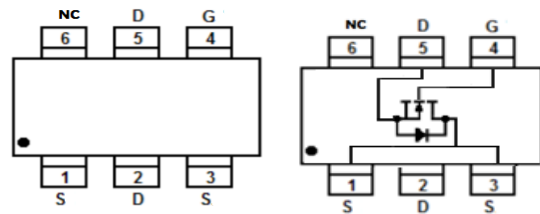
**Application**

- Portable Devices
- Consumer Electronics

**Mechanical**

- Case: SOT-23-6 Package

PRODUCTY SUMMARY			
$V_{DS}$	$R_{DS(on)}$ m( $\Omega$ )		$I_D$ (A)
20	10	@ $V_{GS}=4.5V$	5.5
	12	@ $V_{GS}=2.5V$	5.0

**SOT-23-6**

**Packing Information**

Package	Packing
SOT-23-6	3Kpcs / 7" Reel

**Maximum Ratings ( $T_A=25^{\circ}C$  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>	$I_D$	6.7	A
Maximum Power Dissipation	$P_D$	0.5	W
Pulsed Drain Current <sup>2)</sup>	$I_{DM}$	26.8	A
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}C$

**Typical Thermal Resistance**

Parameter	Symbol	Limit	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	100	$^{\circ}C/W$

**Note:**

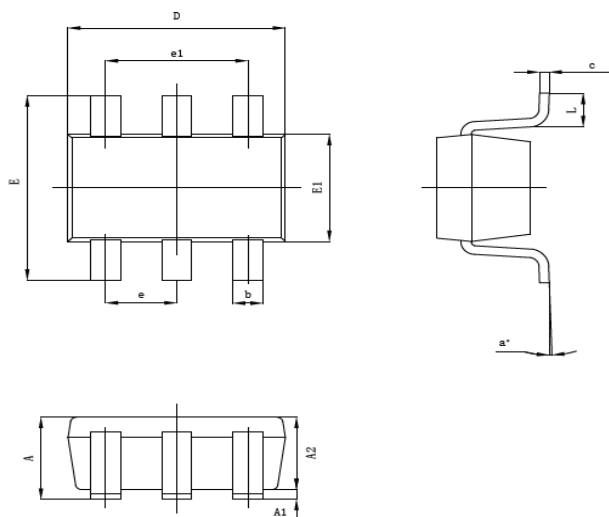
$R_{\theta JA}$  is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper

Electrical Characteristics (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
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	0.40	-	1.00	V
DrainSource OnState Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =5.5A	-	7	10	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =5.0A	-	9.4	12	mΩ
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V	-	-	1	uA
GateSource Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±100	nA
Dynamic <sup>3)</sup>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 20V, I <sub>D</sub> = 20A,VGS = 10V	-	29.1	-	nC
GateSource Charge	Q <sub>gs</sub>		-	5.9	-	nC
GateDrain Charge	Q <sub>gd</sub>		-	3.5	-	nC
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> 20V, V <sub>GS</sub> = 0V, f = 1MH	-	3497	-	pF
Output Capacitance	C <sub>oss</sub>		-	339	-	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	295	-	pF
Switching						
TurnOn Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, Rload=10ohm, Vgen = 10V, Rg = 3ohm	-	3.6	-	ns
TurnOn Rise Time	t <sub>r</sub>		-	22.5	-	ns
TurnOff Delay Time	t <sub>d(off)</sub>		-	84.1	-	ns
TurnOff Fall Time	t <sub>f</sub>		-	16.5	-	ns
DrainSource Diode						
Maximum Continuous Body Diode Forward Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	-	-	1.2	A
Diode Forward Voltage	V <sub>SD</sub>	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.

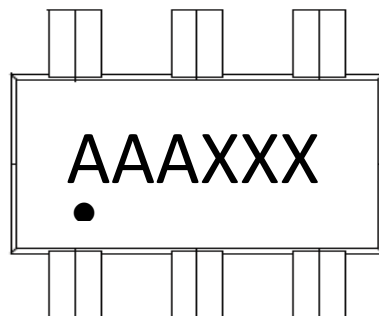
## Package Outline Dimensions ( inches and millimeters)



## SOT-23-6

SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	-	1.350	-	0.053
A1	0.040	-	0.002	-
A2	0.900	1.300	0.035	0.051
b	0.350	0.480	0.014	0.019
c	0.080	0.210	0.003	0.008
D	2.720	3.120	0.107	0.123
E	2.600	3.000	0.102	0.118
e	1.80BSC		0.070BSC	
e1	1.90BSC		0.074BSC	
L	0.300	0.600	0.012	0.024
a°	0°	8°	0°	8°

## Marking Information



AAA = Product number  
XXX = Tracking number

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