

Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

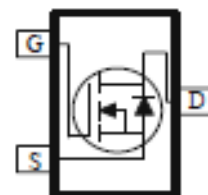
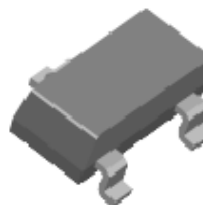
Typical Applications:

- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D (A)
20	76 @ $V_{GS} = 4.5V$	3.4
	103 @ $V_{GS} = 2.5V$	3.0



RoHS
COMPLIANT
HALOGEN
FREE



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ^a	$T_A = 25^\circ C$	I_D	3.4	A
	$T_A = 70^\circ C$		2.7	
Pulsed Drain Current ^b		I_{DM}	10	
Continuous Source Current (Diode Conduction) ^a		I_S	1.6	A
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	1.3	W
	$T_A = 70^\circ C$		0.8	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	100	$^\circ C/W$
	Steady State		166	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature



Electrical Characteristics

AM2302N

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	0.4			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 8 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16 V, V_{GS} = 0 V$			1	uA
		$V_{DS} = 16 V, V_{GS} = 0 V, T_J = 55^\circ C$			25	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 4.5 V$	5			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5 V, I_D = 2.7 A$			76	mΩ
		$V_{GS} = 2.5 V, I_D = 2.2 A$			103	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15 V, I_D = 2.7 A$		8		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 0.8 A, V_{GS} = 0 V$		0.77		V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 2.7 A$		1.8		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 10 V, R_L = 3.8 \Omega, I_D = 2.7 A, V_{GEN} = 4.5 V, R_{GEN} = 6 \Omega$		7		ns
Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			25		
Fall Time	t_f			11		
Input Capacitance	C_{iss}	$V_{DS} = 15 V, V_{GS} = 0 V, f = 1 Mhz$		73		pF
Output Capacitance	C_{oss}			25		
Reverse Transfer Capacitance	C_{rss}			20		

Notes

- a. Pulse test: PW <= 300us duty cycle <= 2%.
- b. Guaranteed by design, not subject to production testing.