Analog Power AM7900N

Dual N-Channel 150-V (D-S) MOSFET

Key Features:

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

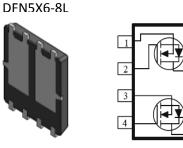
Typical	l Applica	ations:
---------	-----------	---------

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

PRODUCT SUMMARY				
V _{DS} (V)	$r_{DS(on)}(m\Omega)$	I⊳(A)		
150	170 @ V _{GS} = 10V	3.2		
130	190 @ V _{GS} = 5.5V	3.0		







ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}$ C UNLESS OTHERWISE NOTED)						
Parameter			Limit	Units		
Drain-Source Voltage			150	V		
Gate-Source Voltage	V_{GS}	±20	V			
Continuous Drain Current ^a	T _A =25°C	I_	3.2			
Continuous Drain Current		- I _D	2.6	Α		
Pulsed Drain Current ^b	I_{DM}	15				
Continuous Source Current (Diode Conduction) a		I _S	3	Α		
Power Dissipation ^a	T _A =25°C	P_{D}	2.5	W		
Prower Dissipation	T _A =70°C	' D	1.6	VV		
Operating Junction and Storage Temperature Range			-55 to 150	°C		

THERMAL RESISTANCE RATINGS							
Parameter	Symbol	Maximum	Units				
Maximum Junction-to-Ambient ^a	t <= 10 sec	$R_{\theta JA}$	50	°C/W			
Maximum Junction-to-Ambient	Steady State	IXOJA	90	C/VV			

1

Notes

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

Analog Power AM7900N

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit	
Static							
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \text{ uA}$	1			V	
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			±100	nA	
Zara Cata Valtaga Drain Correct	1	$V_{DS} = 120 \text{ V}, V_{GS} = 0 \text{ V}$			1 uA		
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = 120 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55^{\circ}\text{C}$	10		uA		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	4.5			Α	
Drain Cauras On Basistanas a	r	$V_{GS} = 10 \text{ V}, I_{D} = 2 \text{ A}$			170	mΩ	
Drain-Source On-Resistance ^a	r _{DS(on)}	$V_{GS} = 5.5 \text{ V}, I_D = 1.6 \text{ A}$			190	11122	
Forward Transconductance a	g _{fs}	$V_{DS} = 15 \text{ V}, I_{D} = 2 \text{ A}$		7		S	
Diode Forward Voltage ^a	V_{SD}	$I_{S} = 1.5 \text{ A}, V_{GS} = 0 \text{ V}$		0.77		V	
		Dynamic ^b					
Total Gate Charge	Q_g	$V_{DS} = 75 \text{ V}, V_{GS} = 5.5 \text{ V},$		13			
Gate-Source Charge	Q_{gs}	$I_{DS} = 73 \text{ V}, V_{GS} = 3.3 \text{ V},$ $I_{D} = 2 \text{ A}$		5.6		nC	
Gate-Drain Charge	Q_gd	1D = 2 A		4.6			
Turn-On Delay Time	t _{d(on)}	$V_{DS} = 75 \text{ V}, R_{L} = 37.5 \Omega,$		10			
Rise Time	t _r	$V_{DS} = 75 \text{ V}, R_L - 37.3 \Omega,$ $I_D = 2 \text{ A},$		8		ne	
Turn-Off Delay Time	$t_{d(off)}$	$V_{GEN} = 10 \text{ V}, R_{GEN} = 6 \Omega$		30		ns	
Fall Time	t_f	V GEN = 10 V, 1 (GEN = 0.12		9			
Input Capacitance	C _{iss}			1158			
Output Capacitance	C _{oss}	$V_{DS} = 15 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ Mhz}$		81		pF	
Reverse Transfer Capacitance	C_{rss}			45			

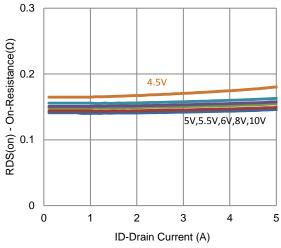
Notes

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

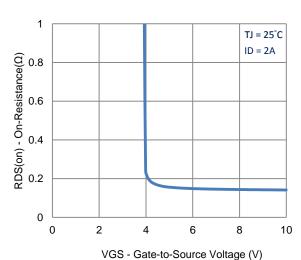
Analog Power (APL) reserves the right to make changes without further notice to any products herein. APL makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does APL assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in APL data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. APL does not convey any license under its patent rights nor the rights of others. APL products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the APL product could create a situation where personal injury or death may occur. Should Buyer purchase or use APL products for any such unintended or unauthorized application, Buyer shall indemnify and hold APL and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that APL was negligent regarding the design or manufacture of the part. APL is an Equal Opportunity/Affirmative Action Employer.

Analog Power AM7900N

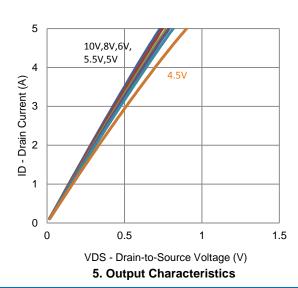
Typical Electrical Characteristics

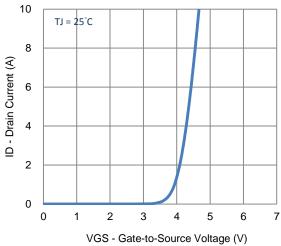


1. On-Resistance vs. Drain Current

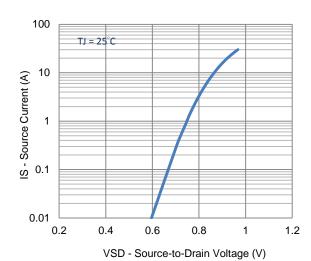


3. On-Resistance vs. Gate-to-Source Voltage

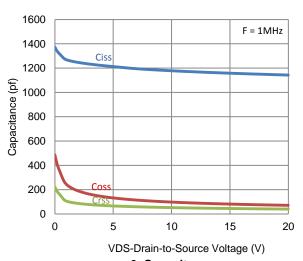




2. Transfer Characteristics



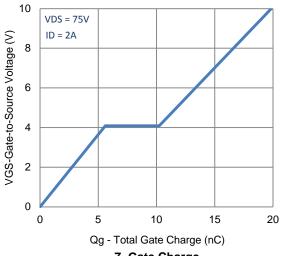
4. Drain-to-Source Forward Voltage

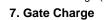


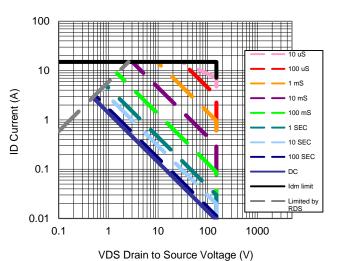
6. Capacitance

Analog Power AM7900N

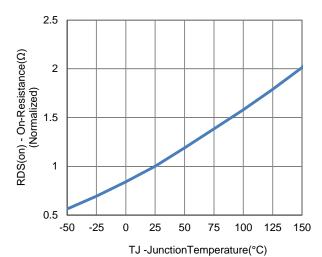
Typical Electrical Characteristics



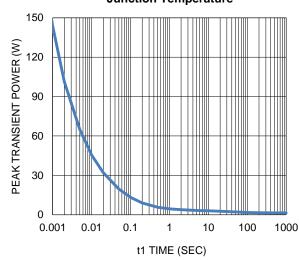




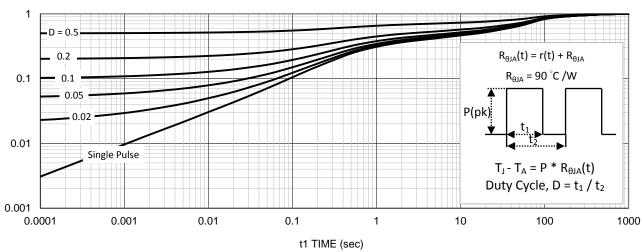
9. Safe Operating Area



8. Normalized On-Resistance Vs **Junction Temperature**



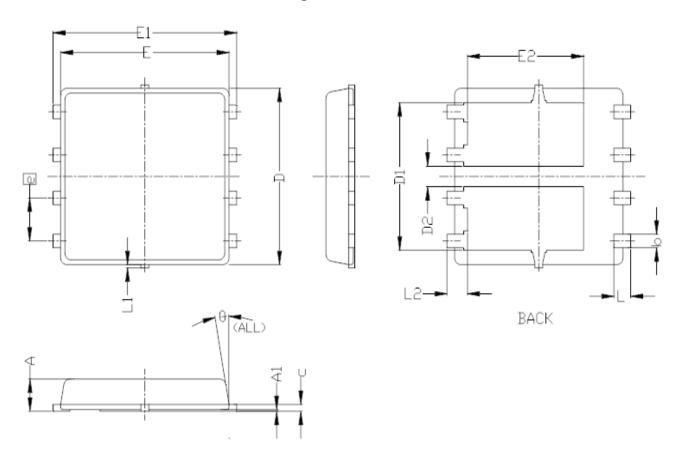
10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Analog Power AM7900N

Package Information



esa mor e	DIMENSIONS IN MILLIMETERS		DIMENSIONS IN INCHES				
SYMBOLS	MIN	NOM	MAX	MIN	NOM	MAX	
Α	0.85	0.95	1.00	0.033	0.037	0. 039	
Al	0.00		0.05	0.000		0.002	
b	0.30	0.40	0.50	0.012	0.016	0.020	
С	0.15	0. 20	0. 25	0.006	0.008	0.010	
D	5. 20 BSC			0. 205 BSC			
D1	4. 35 BSC			0. 171 BSC			
Е		5.55 BSC		0, 219 BSC			
E1	6. 05 BSC			0. 238 BSC			
E2	3. 62 BSC			0. 143 BSC			
e	1. 27 BSC			0. 050 BSC			
L	0.45	0.55	0.65	0.018	0.022	0.026	
L1	0		0.15	0		0.006	
L2	0.68 REF			0. 027 REF			
θ	0°		10°	0°		10°	