Analog Power AM20N06-90I MOSFET Datasheet

http://www.manuallib.com/analog-power/am20n06-90i-mosfet-datasheet.html

Key Features:
Low rDS(on) trench technology
Low thermal impedance
Fast switching speed
Typical Applications:
White LED boost converters
Automotive Systems
Industrial DC/DC Conversion Circuits

N-Channel 60-V (D-S) MOSFET

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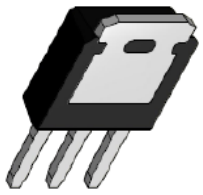
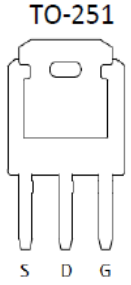
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D(A)
60	94 @ V_{GS} = 10V	19
	109 @ V_{GS} = 4.5V	18

RoHS COMPLIANT HALOGEN FREE





ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Limit**	**Units**
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current [a]	T_A=25°C	I_D	19	A
Pulsed Drain Current [b]		I_{DM}	75	
Continuous Source Current (Diode Conduction) [a]		I_S	42	A
Power Dissipation [a]	T_A=25°C	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS			
Parameter	**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient [a]	$R_{\theta JA}$	40	°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	3	

Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Electrical Characteristics

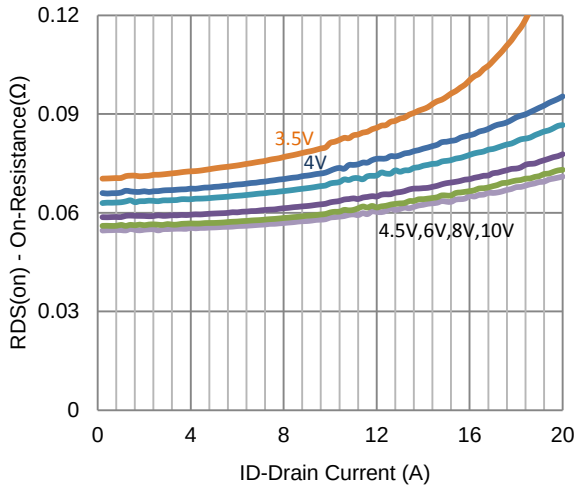
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 48 V, V_{GS} = 0 V			1	uA
		V_{DS} = 48 V, V_{GS} = 0 V, T_J = 55°C			25	
On-State Drain Current	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V	30			A
Drain-Source On-Resistance	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 15.2 A			94	mΩ
		V_{GS} = 4.5 V, I_D = 14 A			109	
Forward Transconductance	g_{fs}	V_{DS} = 15 V, I_D = 15.2 A		20		S
Diode Forward Voltage	V_{SD}	I_S = 21 A, V_{GS} = 0 V		1.03		V
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 30 V, V_{GS} = 4.5 V, I_D = 15.2 A		5.1		nC
Gate-Source Charge	Q_{gs}			2.3		
Gate-Drain Charge	Q_{gd}			2.0		
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = 30 V, R_L = 2 Ω, I_D = 15.2 A, V_{GEN} = 10 V, R_{GEN} = 6 Ω		4		ns
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			17		
Fall Time	t_f			19		
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		475		pF
Output Capacitance	C_{oss}			59		
Reverse Transfer Capacitance	C_{rss}			36		

Notes

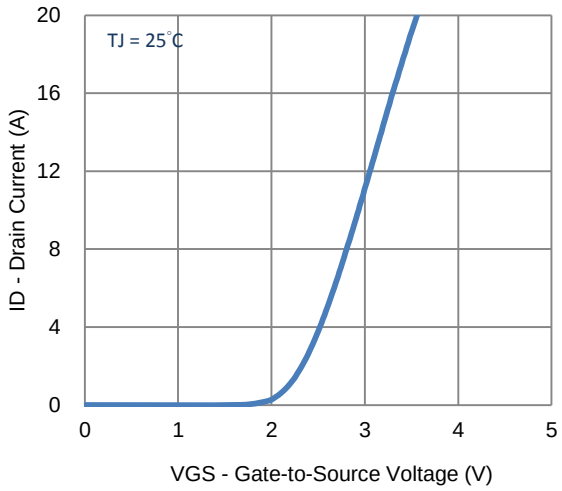
a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

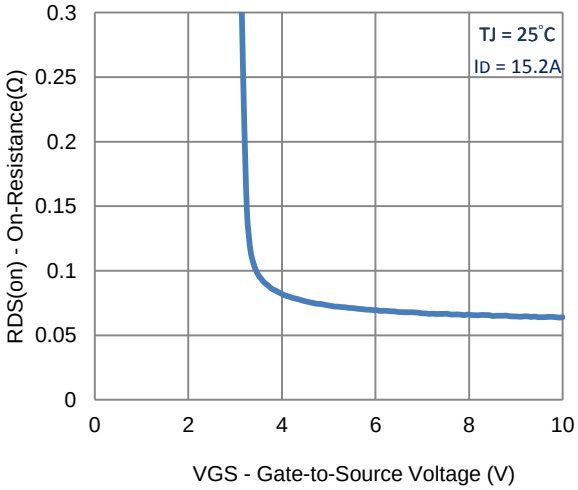
Typical Electrical Characteristics



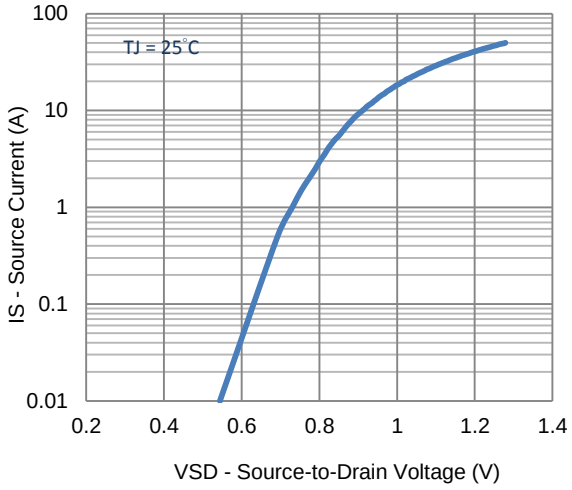
1. On-Resistance vs. Drain Current



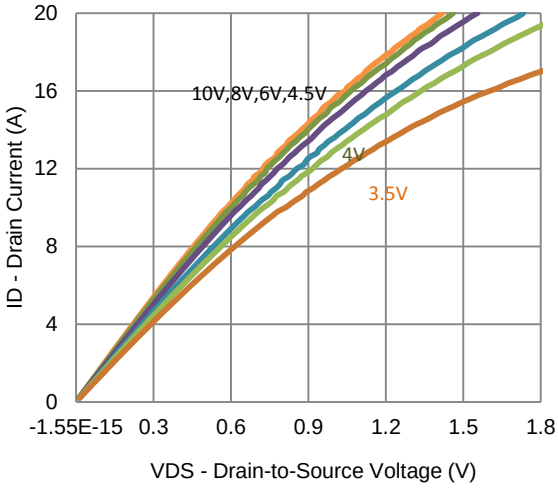
2. Transfer Characteristics



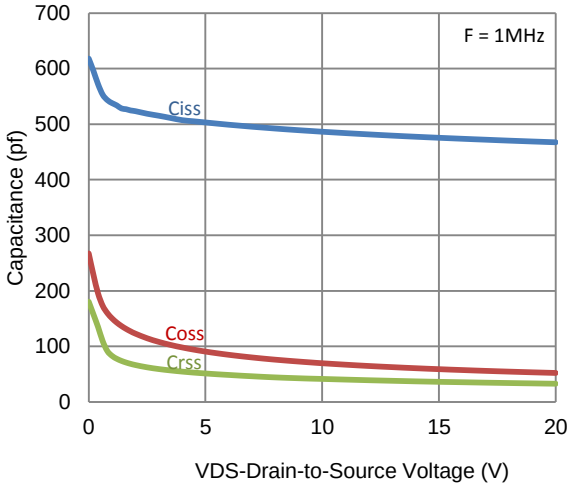
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

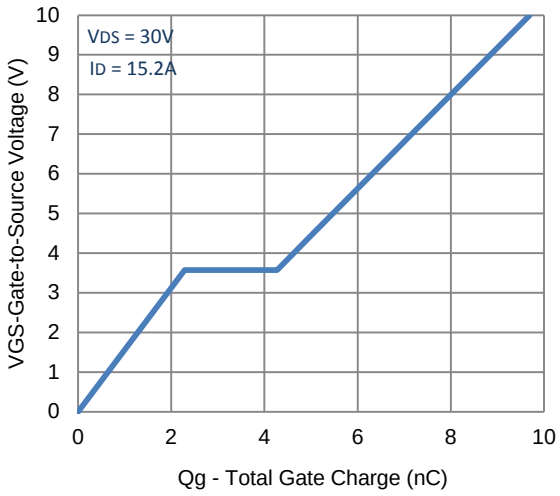


5. Output Characteristics

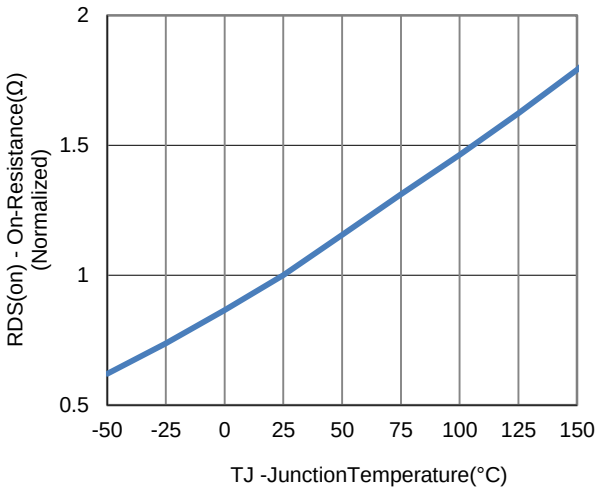


6. Capacitance

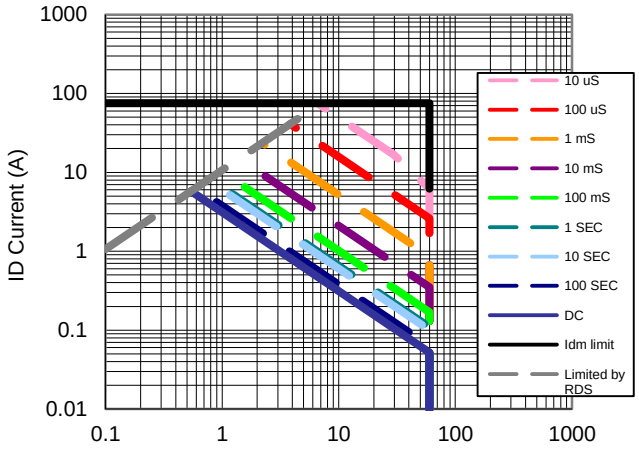
Typical Electrical Characteristics



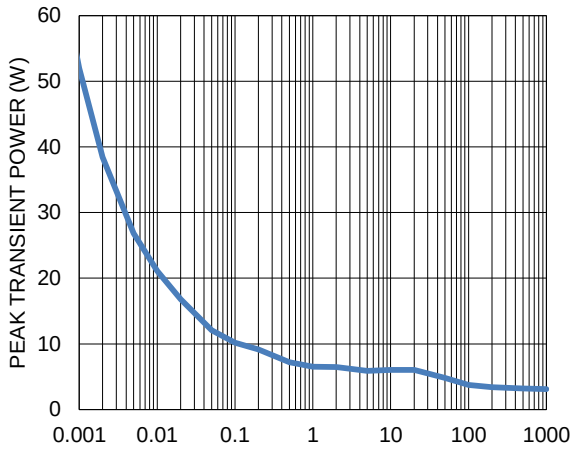
7. Gate Charge



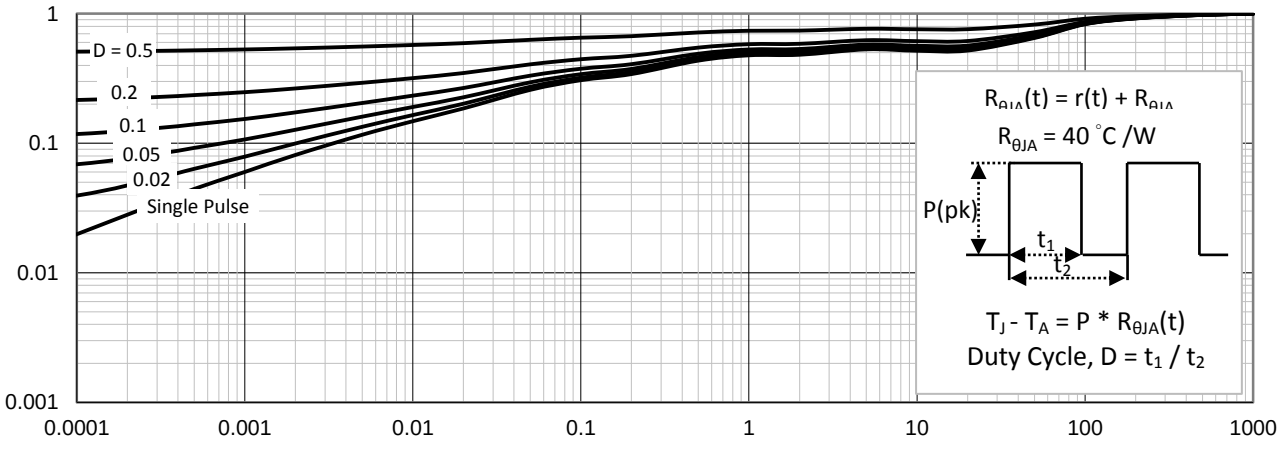
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Package Information

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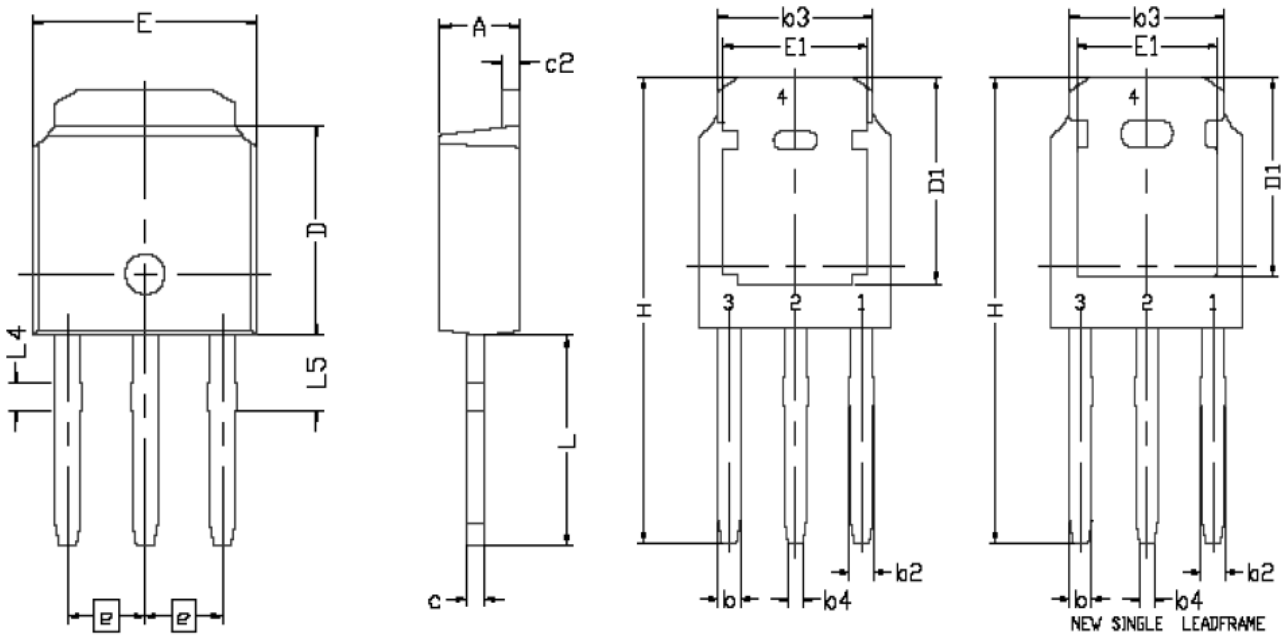

SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	5.88	6.08	6.28
L4	0.66	0.76	0.86
L5	1.96	2.16	2.36
D	6.00	6.10	6.223
H	12.90	13.20	13.50
b	0.64	0.76	0.88
b2	0.77	0.84	1.14
b3	5.21	5.34	5.46
b4	0.41	0.51	0.61
e	2.286 BSC		
A	2.20	2.30	2.38
c	0.40	0.50	0.60
c2	0.40	0.50	0.60
D1	5.30	--	--
E1	4.40	--	--