



DESCRIPTION

The AM8820 is available in TSSOP8 Packages

FEATURES

- 20V/6A,
 $R_{DS(ON)} = 20m\Omega(\text{typ.}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 23m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
 $R_{DS(ON)} = 27m\Omega(\text{typ.}) @ V_{GS} = 3.1V$
 $R_{DS(ON)} = 30m\Omega(\text{typ.}) @ V_{GS} = 2.5V$
 $R_{DS(ON)} = 42m\Omega(\text{typ.}) @ V_{GS} = 1.8V$
- Super High Dense Cell Design
- Reliable and Rugged
- ESD Protected
- Lead Free and Green Devices Available (RoHS Compliant)
- Available in TSSOP8 Packages.

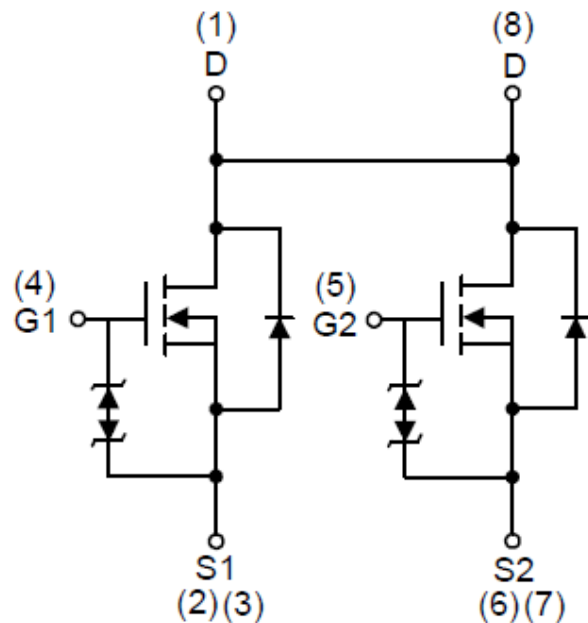
APPLICATION

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

ORDERING INFORMATION

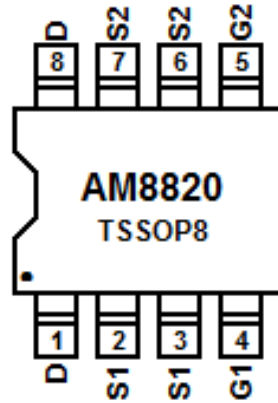
Package Type	Part Number	
TSSOP8	TMX8	AM8820TMX8R
		AM8820TMX8VR
Note	R: Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix " V " means Green Package		

DUAL N-CHANNEL MOSFET





PIN DESCRIPTION



Pin #	Symbol	Function
1	D	Drain
2	S1	Source1
3	S1	Source1
4	G1	Gate1
5	G2	Gate2
6	S2	Source2
7	S2	Source2
8	D	Drain



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C Unless otherwise specified

V _{DSS} , Drain-Source Voltage		20V
V _{GSS} , Gate-Source Voltage		±12V
I _D , Continuous Drain Current	V _{GS} =10V	6A
I _{DM} , 300µs Pulsed Drain Current	V _{GS} =10V	20A
I _S , Diode Continuous Forward Current		1.5A
T _J , Maximum Junction Temperature		150°C
T _{STG} , Storage Temperature Range		-55 °Cto150°C
P _D , Maximum Power Dissipation	T _A =25°C	1.25W
	T _A =100°C	0.5W
R _{θJA} ^{Note1} , Thermal Resistance-Junction to Ambient		100°C/W

Stresses above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1 : Surface Mounted on 1in² pad area, t ≤ 10sec.



ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V	-	-	1	μA
		V _{DS} =16V, V _{GS} =0V, T _J =85°C	-	-	30	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	0.4	0.7	1	V
Gate Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±10	μA
Drain-Source On-state Resistance	R _{DS(ON)} Note2	V _{GS} =10V, I _{DS} =6A	16	20	27	mΩ
		V _{GS} =4.5V, I _{DS} =5A	19	23	30	
		V _{GS} =3.1V, I _{DS} =4A	22	27	35	
		V _{GS} =2.5V, I _{DS} =4A	25	30	39	
		V _{GS} =1.8V, I _{DS} =2A	32	42	55	
Diode Characteristics						
Diode Forward Voltage	V _{SD} Note2	I _{SD} =1.5A, V _{GS} =0V	-	0.7	1.3	V
Reverse Recovery Time	t _{rr}	I _{SD} =6A, dI _{SD} /dt=100A/μs	-	15	-	nS
Reverse Recovery Charge	Q _{rr}		-	7	-	nC
Dynamic Characteristics Note3						
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	4	-	Ω
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	-	550	-	pF
Output Capacitance	C _{oss}		-	100	-	
Reverse Transfer Capacitance	C _{rss}		-	85	-	
Turn-on Delay Time	t _{d(on)}		V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =4.5V, R _G =6Ω	-	5	
Turn-on Rise Time	t _r	-		15	26	
Turn-off Delay Time	t _{d(off)}	-		30	55	
Turn-off Fall Time	t _f	-		5	10	
Gate Charge Characteristics Note3						
Total Gate Charge	Q _g	V _{DS} =10V	-	8.8	12	nC
Gate-Source Charge	Q _{gs}	V _{GS} =4.5V	-	0.8	-	
Gate-Drain Charge	Q _{gd}	I _{DS} =6A	-	3.3	-	

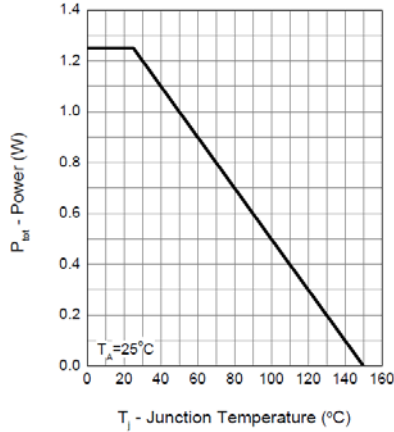
NOTE2: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%

NOTE3: Guaranteed by design, not subject to production testing.

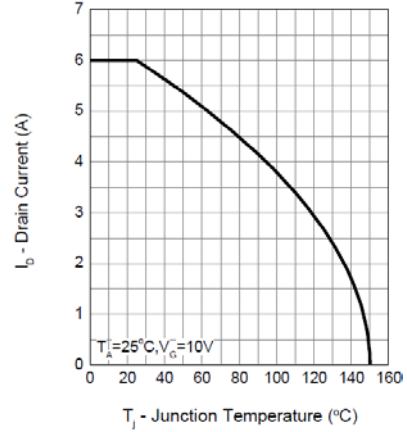


TYPICAL CHARACTERISTICS

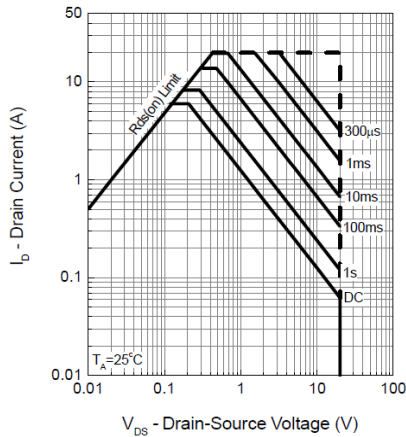
1. Power Dissipation



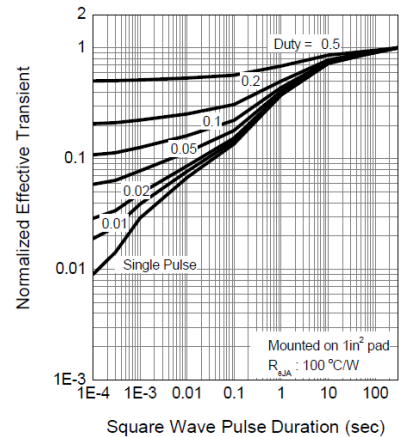
2. Drain Current



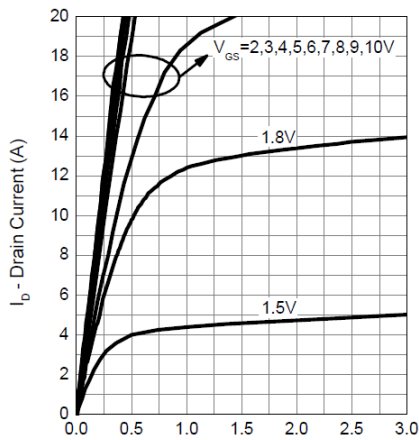
3. Safe Operation Area



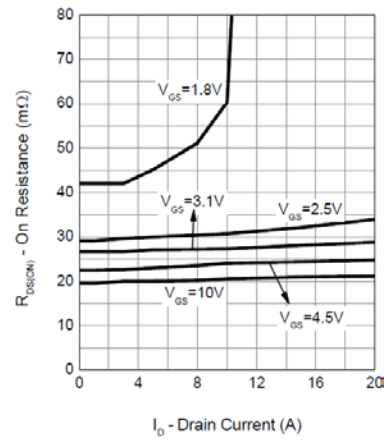
4. Thermal Transient Impedance



5. Output Characteristics

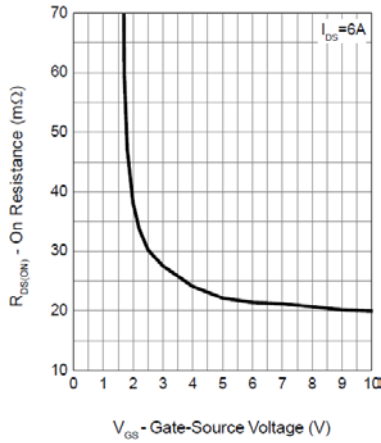


6. Drain-Source On Resistance

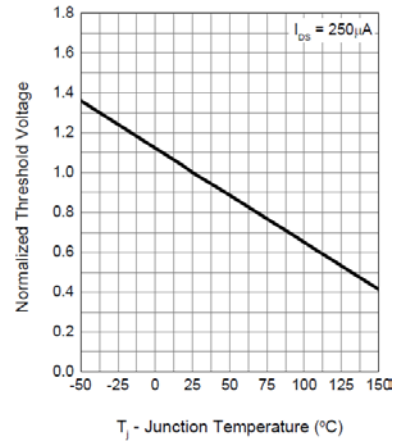




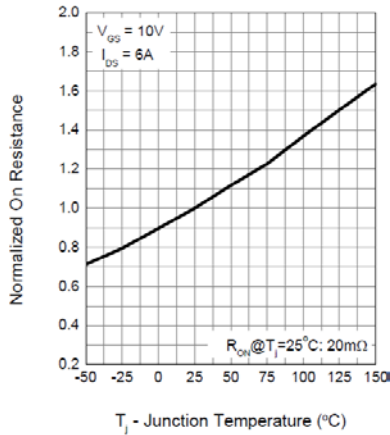
7. Gate-Source On Resistance



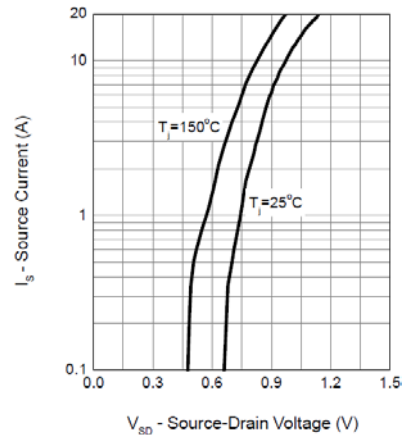
8. Gate Threshold Voltage



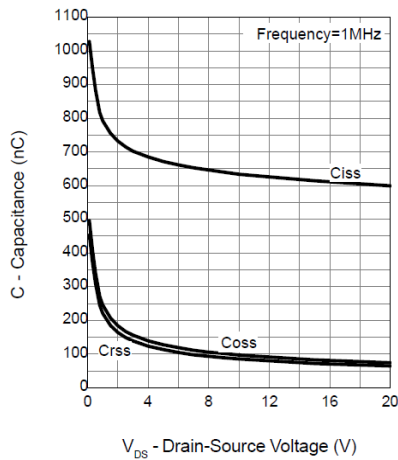
9. Drain-Source On Resistance



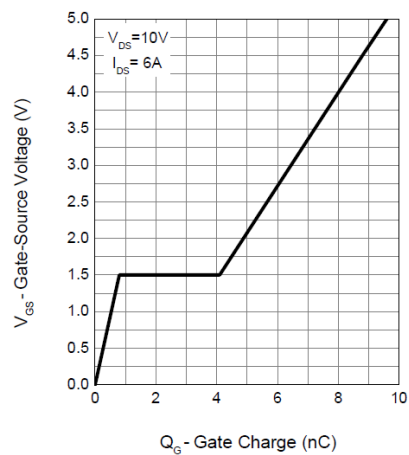
10. Source-Drain Diode Forward



11. Capacitance



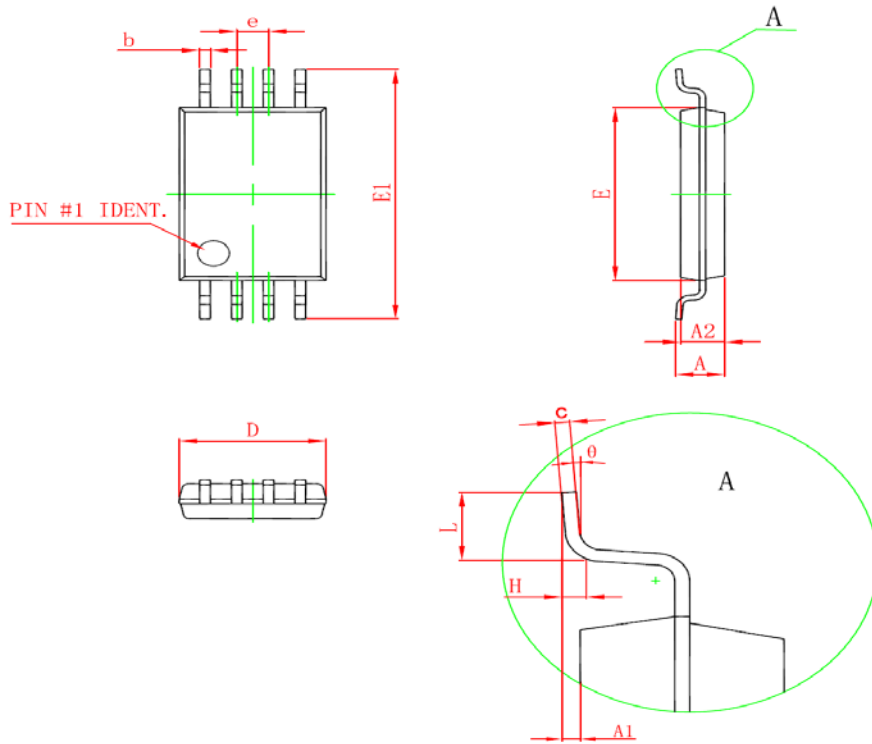
12. Gate Charge





PACKAGE INFORMATION

Dimension in TSSOP8 Package (Unit: mm)



Symbol	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A	-	1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65 (BSC)	
L	0.500	0.700
H	0.25(TYP)	
θ	1°	7°



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