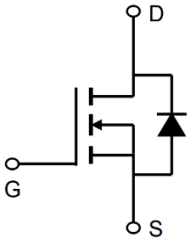
AP220N08TLG1

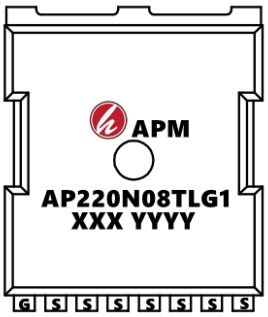
80V N-Channel Enhancement Mode MOSFET

Description

The AP220N08TLG1 uses advanced **APM-SGT I** technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 10V.

This device is suitable for use as a Battery protection or in other Switching application.





General Features

V_{DS} = 80V I_D =220A

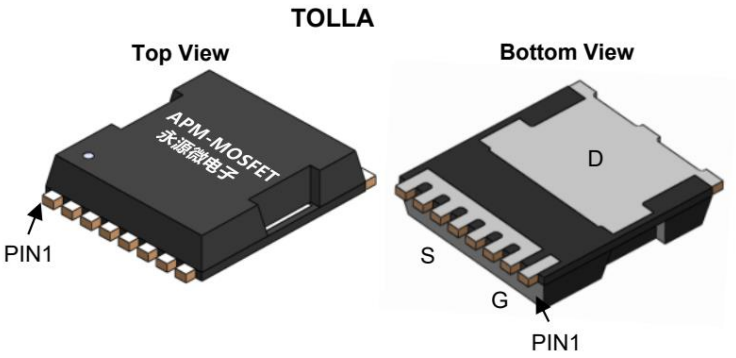
$R_{DS(ON)}$ < 3.2mΩ V_{GS}=10V **（Type：2.4mΩ）**

Application

Battery protection

Load switch

Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
AP220N08TLG1	TOLLA-8L	AP220N08TLG1 XXX YYYY	2000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	80	V
VGS	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	220	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	110	A
IDM	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy	858	mJ
P_D@T_C=25℃	Total Power Dissipation[4]	284	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta}JA$	Thermal Resistance Junction-Ambient	0.53	℃/W
$R_{\theta}JC$	Thermal Resistance Junction-Case	62.5	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V(BR)DSS	Drain-source breakdown voltage	V_{GS}=0V, I_D=250uA	80	92		V
VGS(th)	Gate threshold voltage	V_{DS}=V_{GS},I_D=250uA T_j=25°C	2.0	3.0	4.0	V
IDSS	Zero gate voltage drain current	V_{DS}=80V,V_{GS}=0V T_j=25°C	-		1	μA
IDSS	Zero gate voltage drain current	V_{DS}=80V,V_{GS}=0V T_j=125°C		- 5		μA
IGSS	Gate-source leakage current	V_{GS}=20V,V_{DS}=0V	-	-	100	nA
RDS(on)	Drain-source on-state resistance	V_{GS}=10V, I_D=50A,T_j=25°C	-	2.4	3.2	mΩ
gfs	Transconductance	V_{DS}=5V,I_D=40A	-	106	-	S
Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=40V, f=1MHz	-	6813	-	pF
Coss	Output Capacitance		-	808	-	pF
Crss	Reverse Transfer Capacitance		-	48	-	pF
Q_G	Gate Total Charge	V_{GS}=10V, V_{DS}=40V,I_D=25A	-	91	-	nC
Qgs	Gate-Source charge		-	37	-	nC
Qgd	Gate-Drain charge		-	25	-	nC
td(on)	Turn-on delay time	T_j=25°C, V_{GS}=10V, V_{DS}=40V, R_L=3Ω	-	38	-	ns
t_r	Rise time		-	58	-	ns
td(off)	Turn-off delay time		-	63	-	ns
t_f	Fall time		-	32	-	ns
R_G	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz	-	2	-	Ω
VSD	Body Diode Forward Voltage	V_{GS}=0V,I_{SD}=50A	-	0.85	1.2	V
trr	Body Diode Reverse Recovery Time	I_F=20A, dI/dt=500A/μs	-	85	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	313	-	nC

Note :

1、The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2、The data tested by pulsed , pulse width .The EAS data shows Max. rating .
3、The test cond≦ 300us duty cycle ≦ 2%, duty cycle ition is V_{DD}=64V_{GS}=10V,L=0.1mH,I_{AS}=53.8A
4、The power dissipation is limited by 175℃ junction temperature
5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

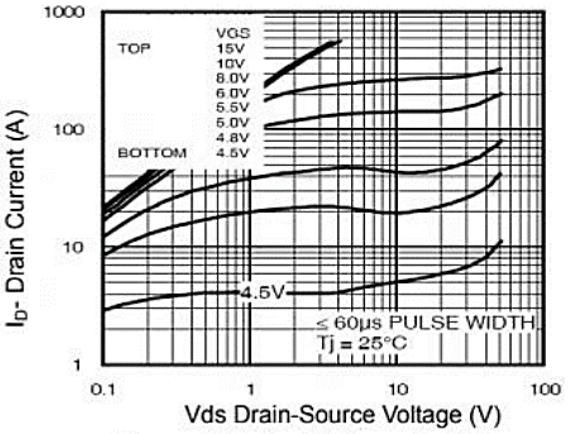


Figure 1 Output Characteristics

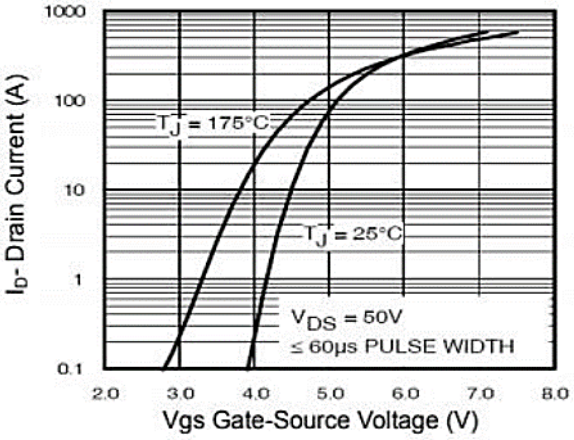


Figure 2 Transfer Characteristics

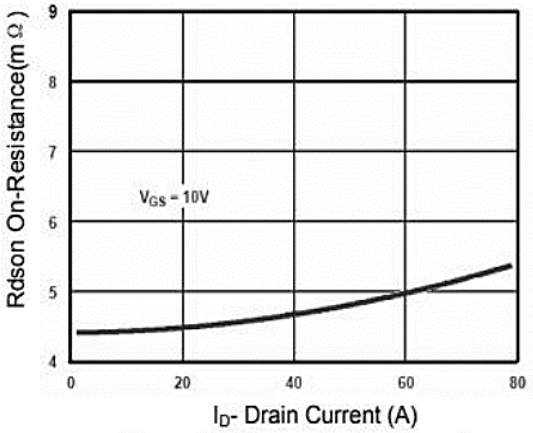


Figure 3 Rdson- Drain Current

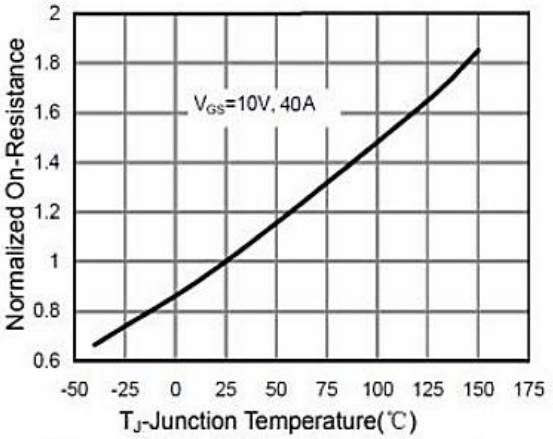


Figure 4 Rdson-JunctionTemperature

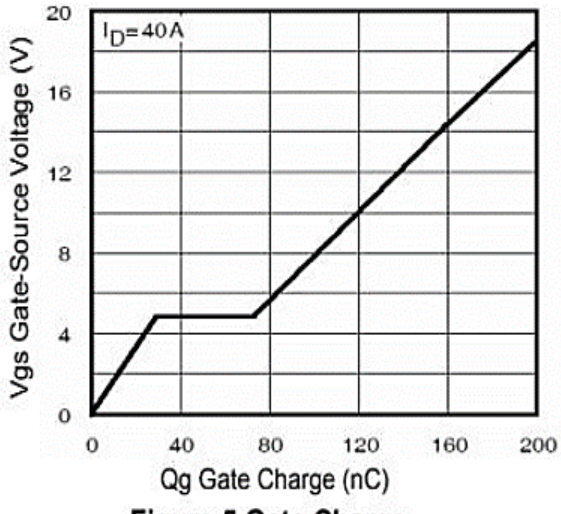


Figure 5 Gate Charge

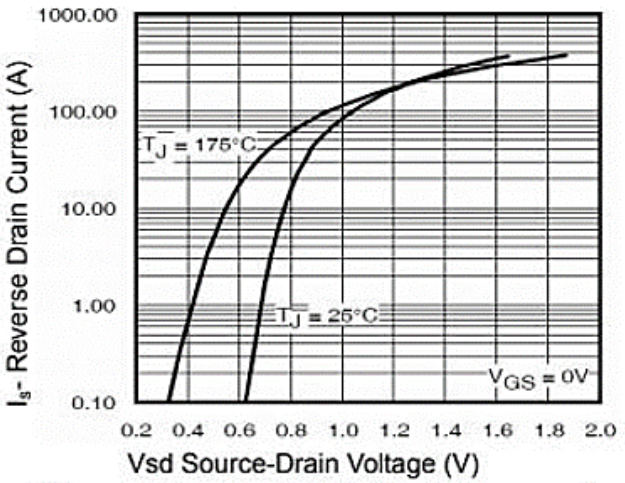


Figure 6 Source- Drain Diode Forward

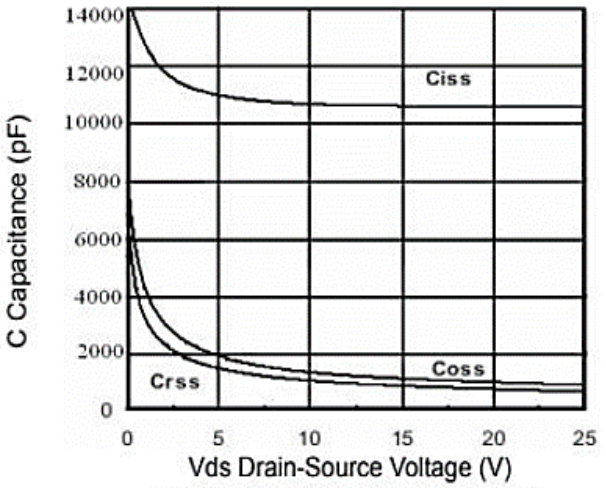


Figure 7 Capacitance vs Vds

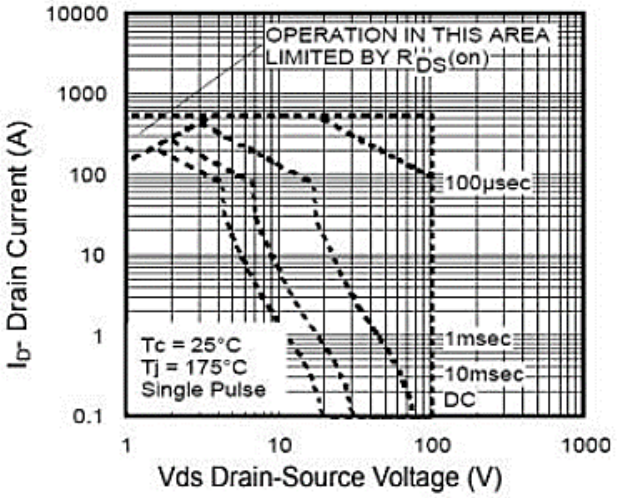


Figure 8 Safe Operation Area

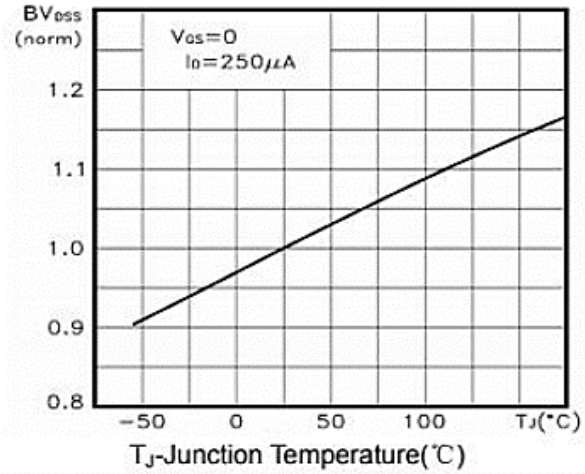


Figure 9 BV_{DSS} vs Junction Temperature

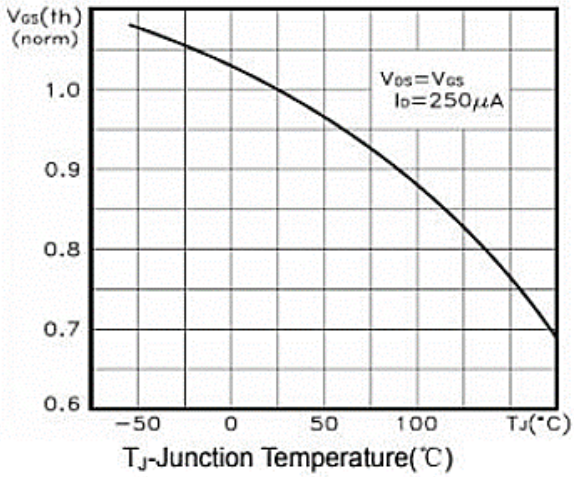


Figure 10 $V_{GS(th)}$ vs Junction Temperature

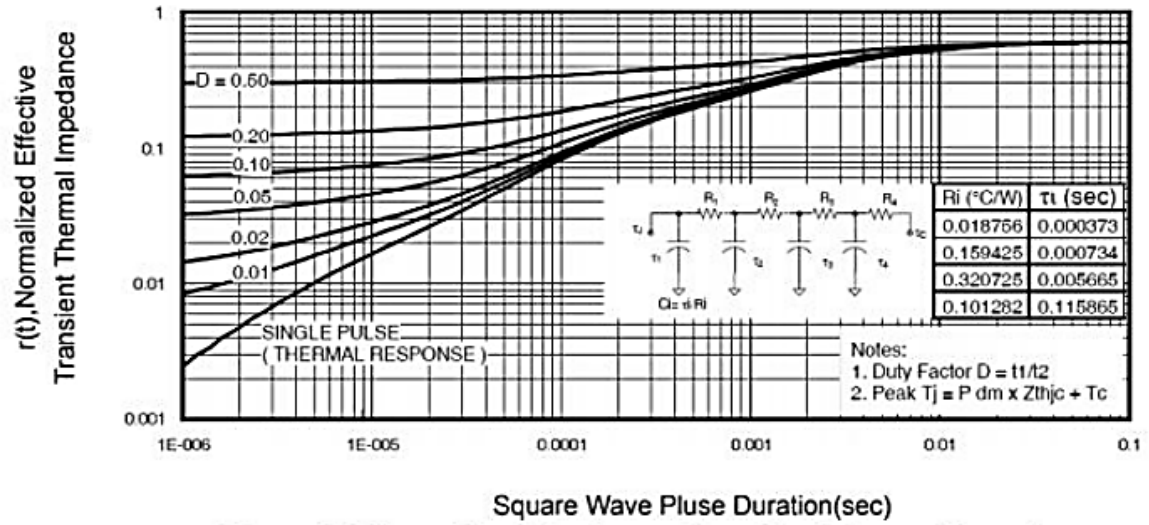


Figure 11 Normalized Maximum Transient Thermal Impedance

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Edition	Date	Change
Rve1.0	2020/10/31	Initial release