DP8207

Dual N-Channel Enhancement Power MOSFET

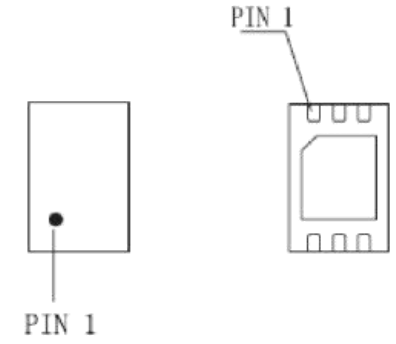
GENERAL DESCRIPTION

DP8207 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

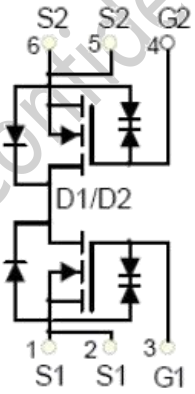
PRODUCT SUMMARY

V_{DS}	20 V
I_D (at V_{GS}=4.5V)	7A
$R_{DS(ON)}$ (at V_{GS} = 4.5V)	13mΩ
$R_{DS(ON)}$ (at V_{GS} = 3.8V)	15mΩ
$R_{DS(ON)}$ (at V_{GS} = 2.5V)	17mΩ

ESD Protected



Top Back



ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current [c]	T_A=25℃	I_D	7	A
Pulsed Drain Current [a c]		I_{DM}	42	A
Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10 s)		TL	260	℃

THERMAL CHARACTERISTIC

Parameter		Symbol	Limit	Unit
Maximum Junction-to-Ambient	Steady-State	$R_{\theta JA}$	83	℃/W

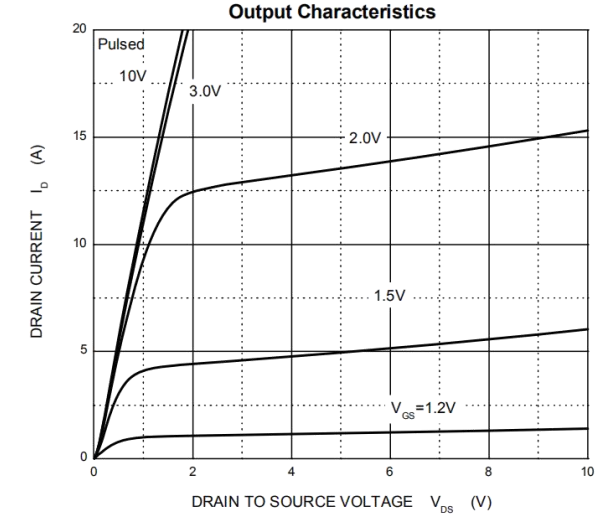
ELECTRICAL CHARACTERISTICS (TA=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typc	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±10V,V_{DS}=0V	-	-	±10	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	-	0.9	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6.5A	11	13	18	mΩ
		V_{GS}=3.8V, I_D=5.5A	13	15	20	mΩ
		V_{GS}=2.5V, I_D=5.5A	14	17	24	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=7A	9	-	-	S
Dynamic Characteristics [b]						
Input Capacitance	C_{lss}	V_{DS}=10V, V_{GS}=0V, F=1.0MHz	-	1150	-	pF
Output Capacitance	C_{oss}		-	185	-	pF
Reverse Transfer Capacitance	C_{rss}		-	145	-	pF
Switching Characteristics [b]						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, V_{GS}=5V, RL=1.35Ω, R_{GEN}=3Ω,	-	6	-	nS
Turn-on Rise Time	t_r		-	13	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	52	-	nS
Turn-Off Fall Time	t_f		-	16	-	nS
Total Gate Charge	Q_g	V_{DS}=10V, I_D=4.5A, V_{GS}=7V	-	15	-	nC
Gate-Source Charge	Q_{gs}		-	0.8	-	nC
Gate-Drain Charge	Q_{gd}		-	3.2	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1A	-	-	1	V
Maximum Body-Diode	I_S	-	-	-	6.0	A

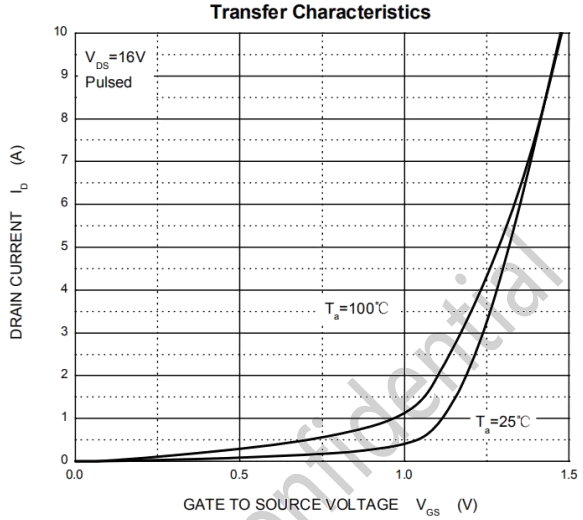
Notes
a.Pulse Test:Pulse Width < 300us, Duty Cycle < 0.5%.
b.Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

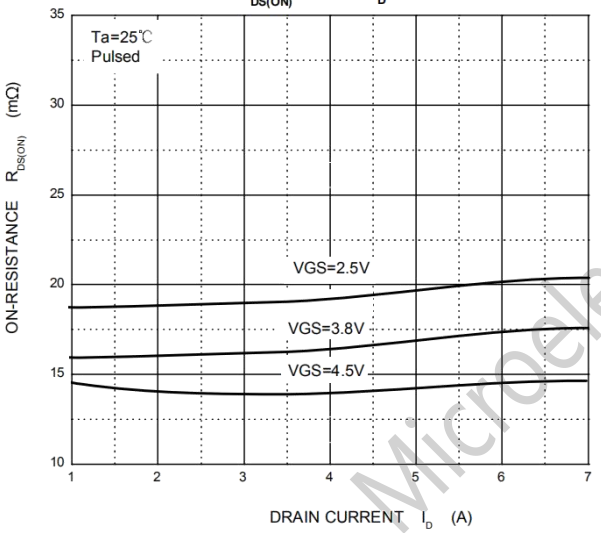
Output Characteristics



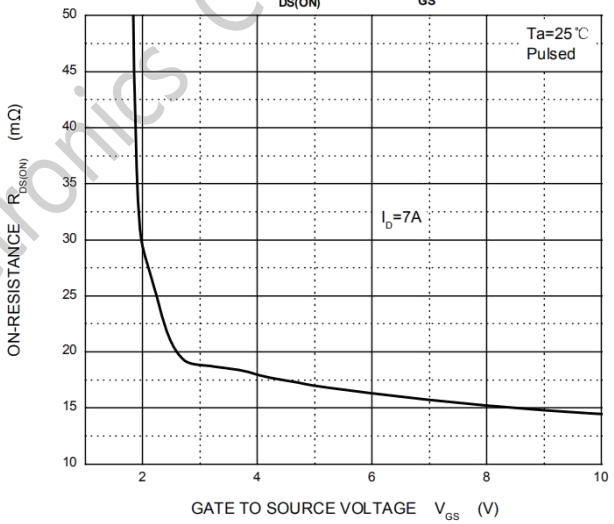
Transfer Characteristics



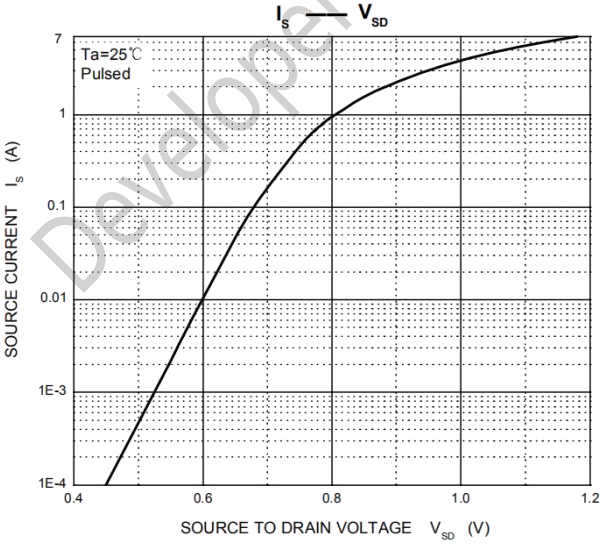
$R_{DS(ON)}$ — I_D



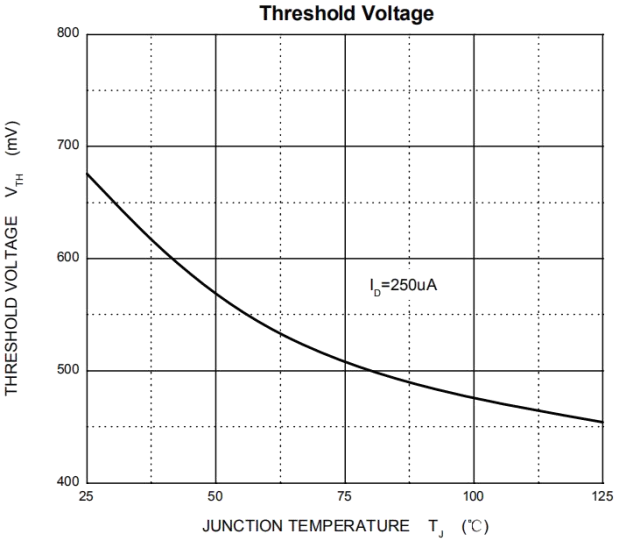
$R_{DS(ON)}$ — V_{GS}

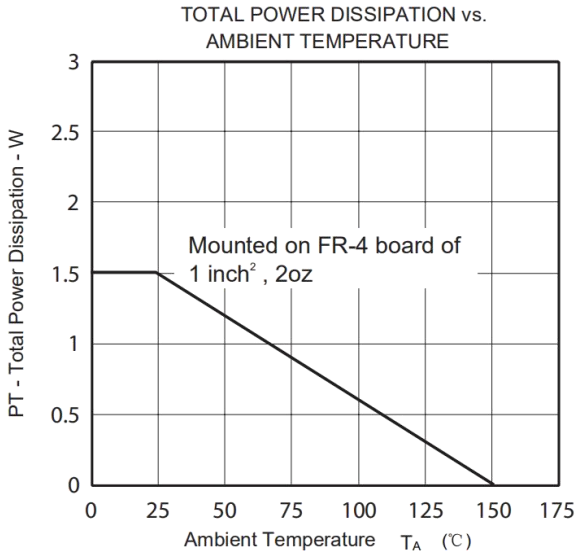


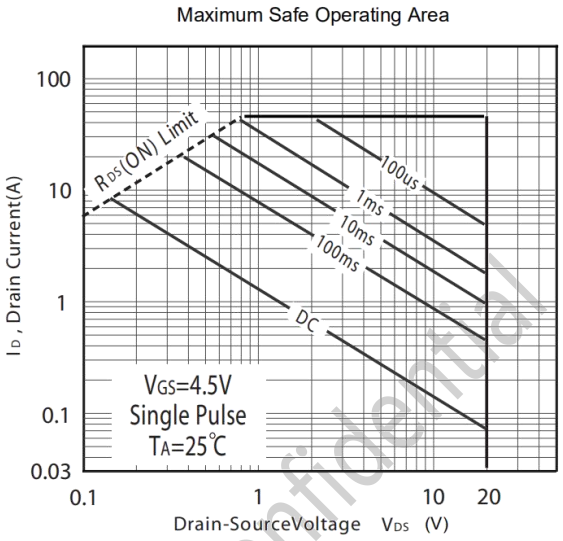
I_S — V_{SD}

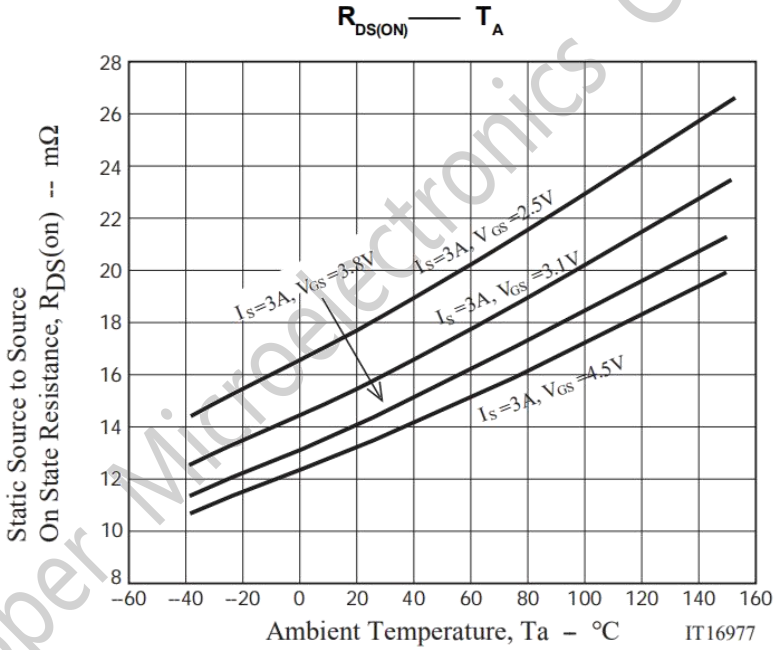


Threshold Voltage









MARKING DESCRIPSION

TDFN2X3-6L

NOTE:

Y —Code of productive year code(the last number of the year)

M —Code of productive month(for example: A means January, B means February…)

DD —Productive date(the number of the date)

NN —Lot number of wafer

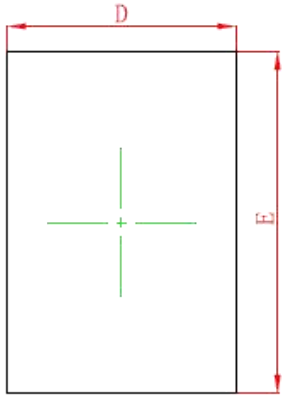
FOR EXCAMPLE:

5G1103

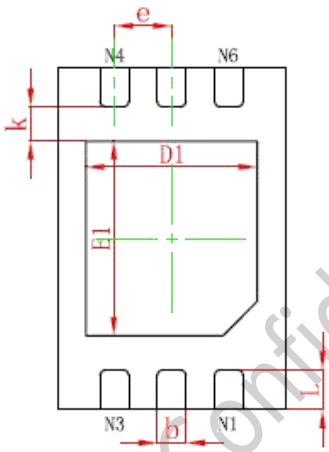
Means this product was produced in 2015-07-11 , and 03 is the wafer lot.

PACKAGE OUTLINE DIMENSIONS

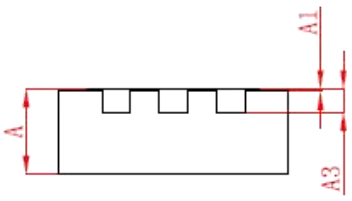
TDFN2X3-6L



TOP VIEW

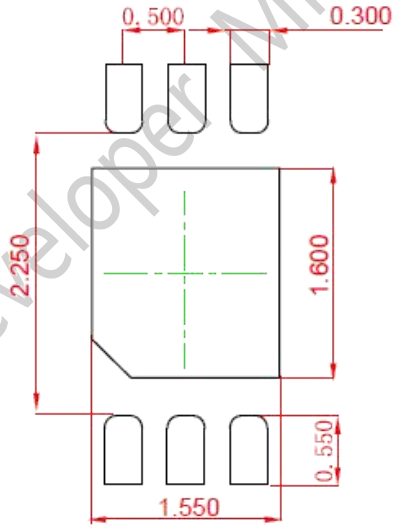


BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016



Note:
1.Controlling dimension:In millimeters.
2,General tolerance:±0.050mm,
3.The pad layout is for reference purposes only.

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