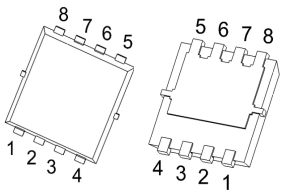
GP20N06P33

60V N-Channel MOSFET

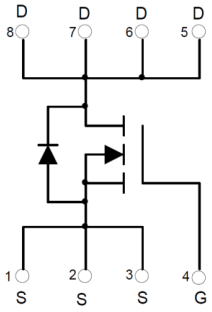
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	26mΩ@10V	20A

PDFN3.3X3.3-8L



Schematic diagram



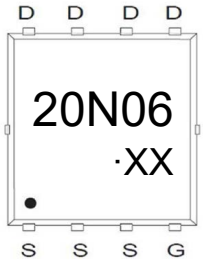
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING:



20N06 = Device code

Solid dot = Pin1 indicator

XX = Date Code

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(T_C = 25℃)	I_D	20	A
Pulsed Drain Current	I_{DM}	60	A
Single Pulse Avalanche Energy[5]	E_{AS}	70	mJ
Total Power Dissipation(T_C = 25℃)	P_D	19	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	83.3	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	6.7	℃/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_C=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	2	3	V
Drain-Source On-Resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =10A		26	35	mΩ
Forward Tranconductance[3]	g_{FS}	V_{DS} =6V, I_D =10A	18			S
Dynamic Characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =30V,V_{GS} =0V,f =1MHz		960		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			54		
Switching Characteristics[4]						
Total Gate Charge@-4.5V	Q_g	V_{DS}=48V , V_{GS}=10V , I_D=15A		12		nC
Gate-Source Charge	Q_{gs}			4.1		
Gate-Drain Charge	Q_{gd}			4.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V , V_{GS}=10V , R_L=15Ω , R_G=2.5Ω		5		ns
Turn-On Rise Time	t_r			2.6		
Turn-Off Delay Time	$t_{d(off)}$			17		
Turn-Off Fall Time	t_f			2.5		
Diode Characteristics						
Continuous Source Current[2]	I_S	V_G=V_D=0V , Force Current			20	A
Diode Forward Voltage[3]	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃		0.72	1.2	V

Note :

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

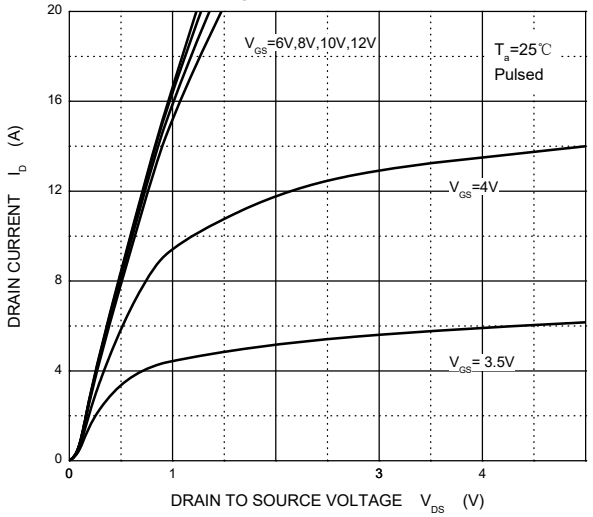
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

4. Guaranteed by design, not subject to production

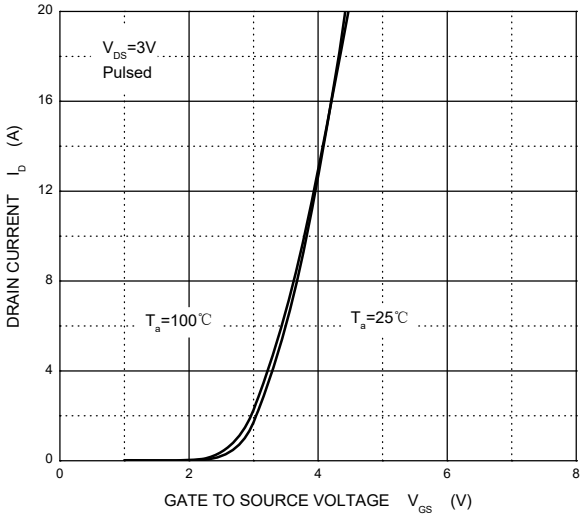
5. EAS condition : T_j=25℃,V_{DD}=30V,V_G=10V,L=0.5mH,R_g=25Ω

Typical Electrical and Thermal Characteristics

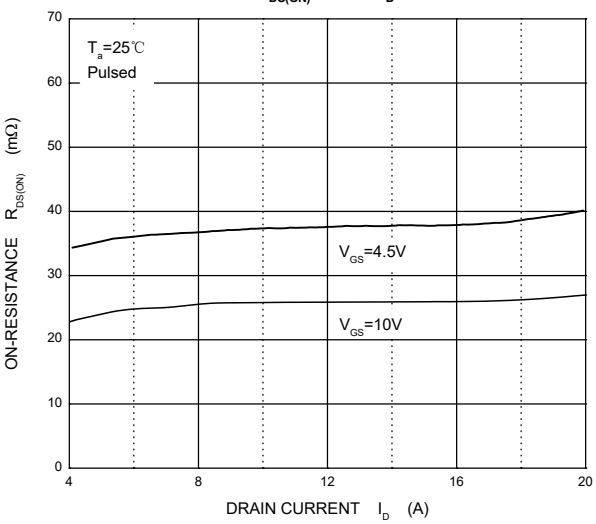
Output Characteristics



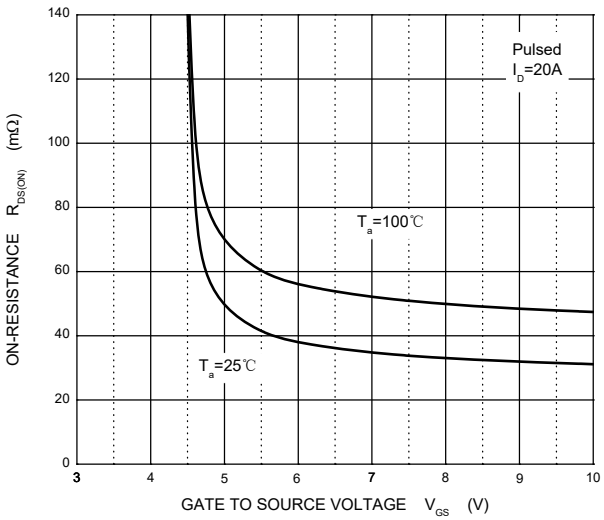
Transfer Characteristics



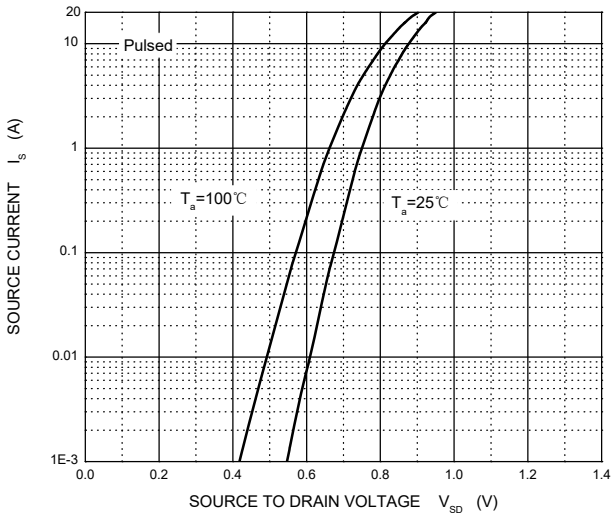
$R_{DS(ON)}$ — I_D



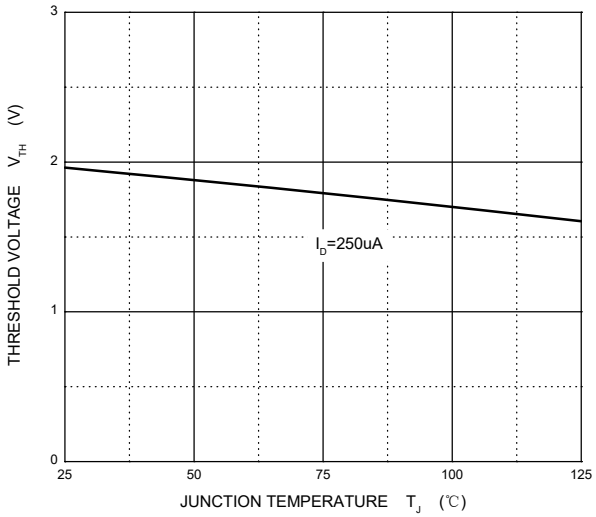
$R_{DS(ON)}$ — V_{GS}



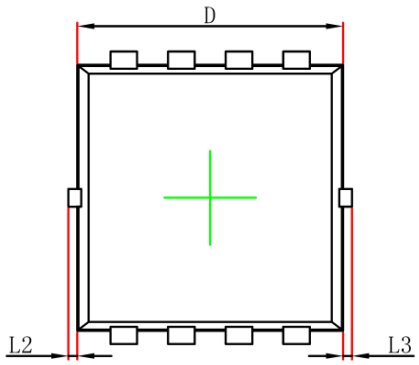
I_S — V_{SD}



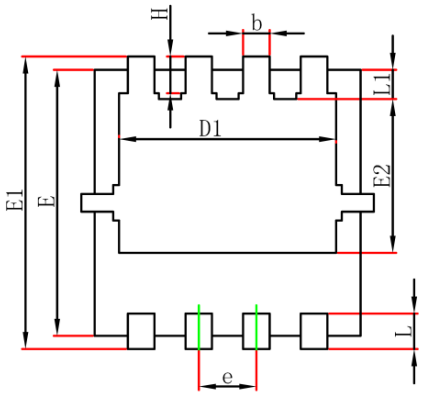
Threshold Voltage



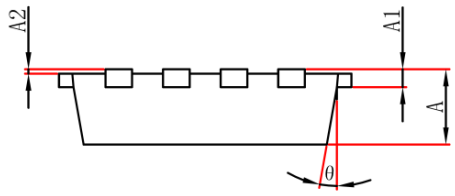
PDFN3.3X3.3-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.10	0.25	0.004	0.010
A2	0.000	0.050	0.000	0.002
D	2.900	3.200	0.114	0.126
D1	2.300	2.600	0.091	0.102
E	2.900	3.200	0.114	0.126
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
θ	0°	12°	0°	12°

Attention：

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
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