

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	29mΩ@10V	20A

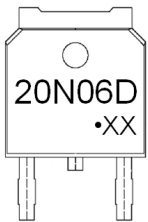
Feature

- 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

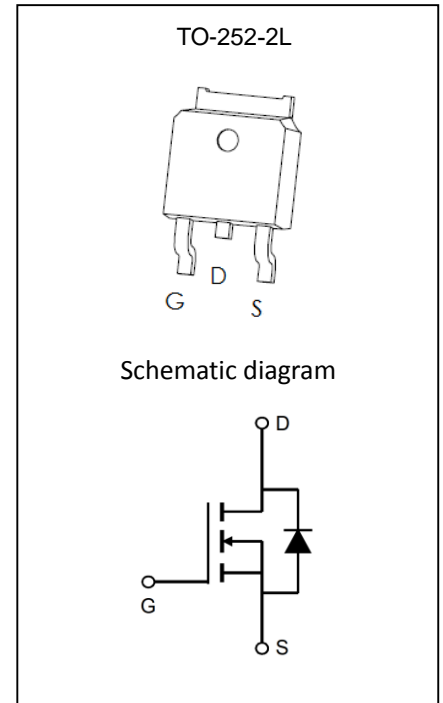
Application

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

MARKING:



20N06D= Device code
 XX = Date Code
 Solid Dot = Green Indicator



ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ¹	I_D	20	A
Pulsed Drain Current ²	I_{DM}	60	A
Single Pulse Avalanche Energy ³	E_{AS}	72	mJ
Total Power Dissipation ⁵	P_D	36	W
$T_C = 25^{\circ}C$			
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.5	$^{\circ}C/W$
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	41.7	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

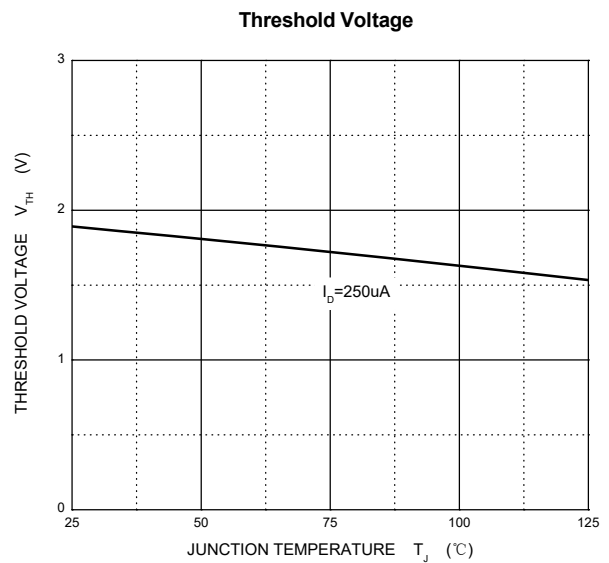
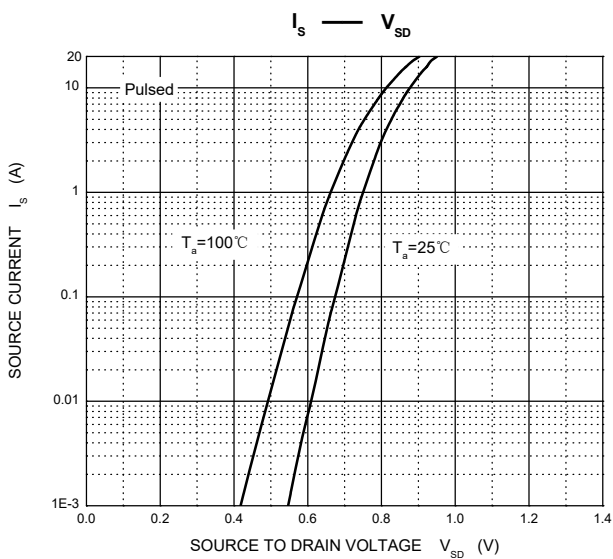
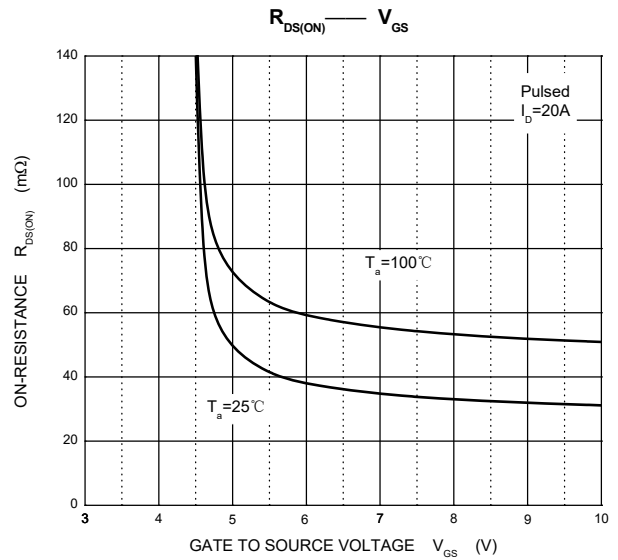
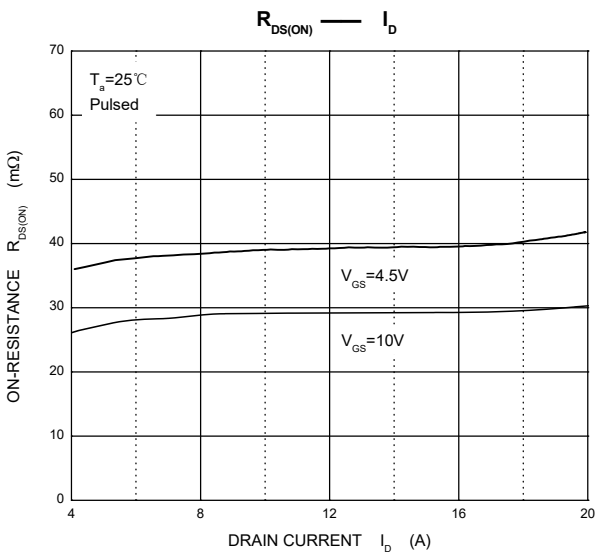
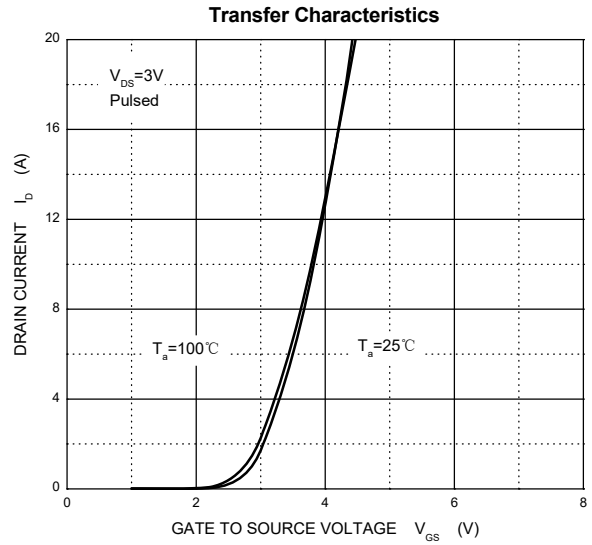
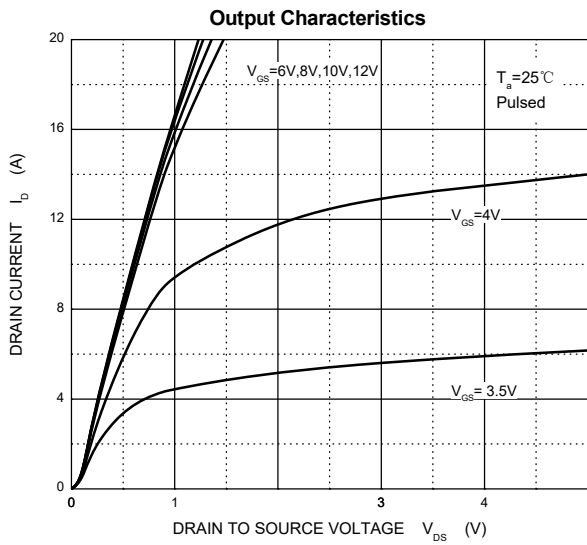
MOSFET ELECTRICAL CHARACTERISTICS($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage ⁴	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	2	3	V
Drain-source on-resistance ⁴	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		29	38	m Ω
Forward transconductance ⁴	g_{FS}	$V_{DS} = 6V, I_D = 10A$	18			S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		780		pF
Output Capacitance	C_{oss}			52		
Reverse Transfer Capacitance	C_{rss}			26		
Switching Characteristics						
Total Gate Charge@-4.5V	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 10A$		17		nC
Gate-Source Charge	Q_{gs}			4.1		
Gate-Drain Charge	Q_{gd}			4.5		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_L = 15\Omega, R_G = 2.5\Omega$		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	I_S	$V_G = V_D = 0V, \text{Force Current}$			20	A
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 1A, T_J = 25^{\circ}\text{C}$			1.2	V

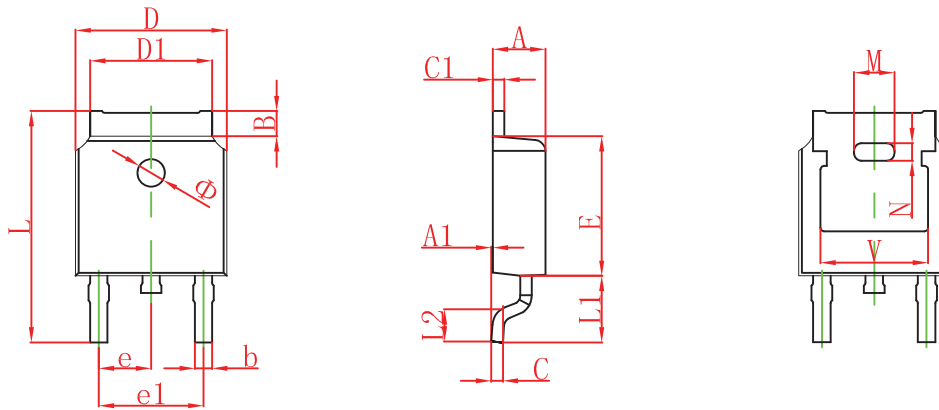
Note :

1. The maximum current rating is limited by package. And device mounted on a large heatsink
2. Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. E_{AS} condition: $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.
4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. The power dissipation P_D is limited by $T_{J(MAX)} = 150^{\circ}\text{C}$. And device mounted on a large heatsink
6. Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

Typical Electrical and Thermal Characteristics



TO-252-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051