

General Description

The MY30N20S is N-channel Enhanced VDMOSFETs, obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy.

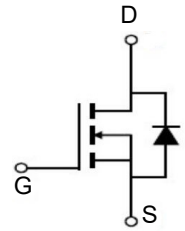
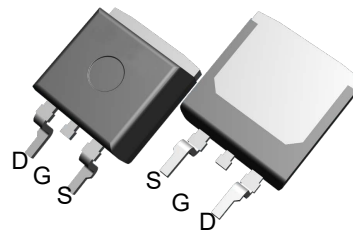


Features

V_{DSS}	200	V
I_D	30	A
$P_D (T_C = 25^\circ C)$	150	W
$R_{DS(ON)} (at V_{GS} = 10V)$	82	m Ω

Application

- High efficiency switch mode power supplies
- Power factor correction
- Electronic lamp ballast



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY30N20S	TO-263	MY30N20S	800

Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	30	A
Drain Current-Continuous($T_C = 100^\circ C$)	$I_D (100^\circ C)$	17	A
Pulsed Drain Current	I_{DM}	100	A
Maximum Power Dissipation	P_D	150	W
Single pulse avalanche energy ^(Note 5)	E_{AS}	250	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	$^\circ C$
Thermal Resistance, Junction-to-Case ^(Note 2)	$R_{\theta JC}$	1	$^\circ C/W$

Electrical Characteristics (T_c=25 °C, unless otherwise noted)

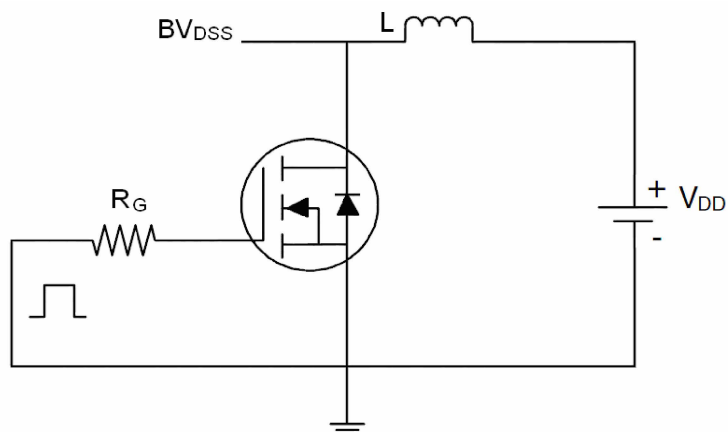
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	200	220	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =200V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =15A	-	82	108	mΩ
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =15A	30	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1.0MHz		4200		PF
Output Capacitance	C _{oss}			163		PF
Reverse Transfer Capacitance	C _{rss}			75		PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =100V, I _D =15A V _{GS} =10V, R _{GEN} =2.5Ω	-	10	-	nS
Turn-on Rise Time	t _r		-	18	-	nS
Turn-Off Delay Time	t _{d(off)}		-	22	-	nS
Turn-Off Fall Time	t _f		-	5	-	nS
Total Gate Charge	Q _g	V _{DS} =100V, I _D =15 A, V _{GS} =10V		60		nC
Gate-Source Charge	Q _{gs}			19		nC
Gate-Drain Charge	Q _{gd}			17		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =15A	-	-	1.2	V
Diode Forward Current (Note 2)	I _S	-	-	-	30	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 15A di/dt = 100A/μs (Note3)	-	90	-	nS
Reverse Recovery Charge	Q _{rr}		-	300	-	nC

Notes:

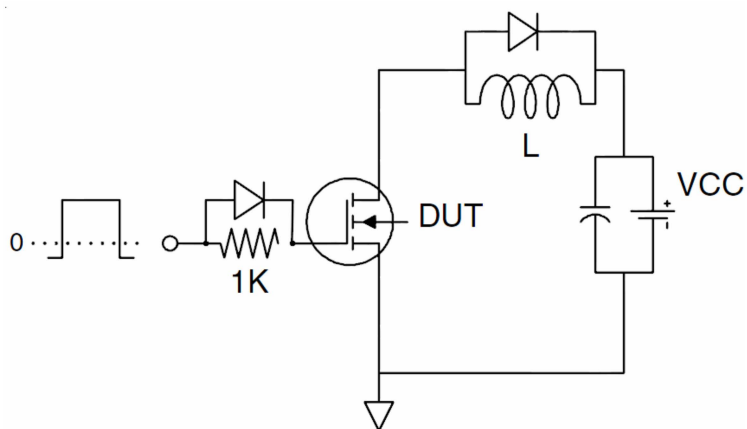
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production
5. EAS condition: T_J=25°C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25Ω

Test Circuit

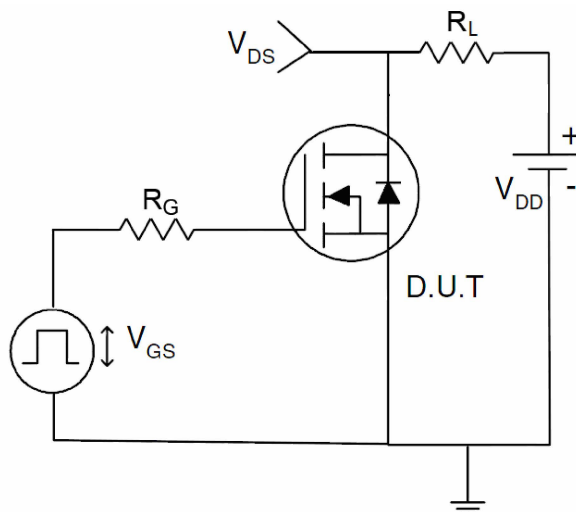
1) E_{AS} Test Circuits



2) Gate Charge Test Circuit



3) Switch Time Test Circuit



Typical Electrical and Thermal Characteristics (Curves)

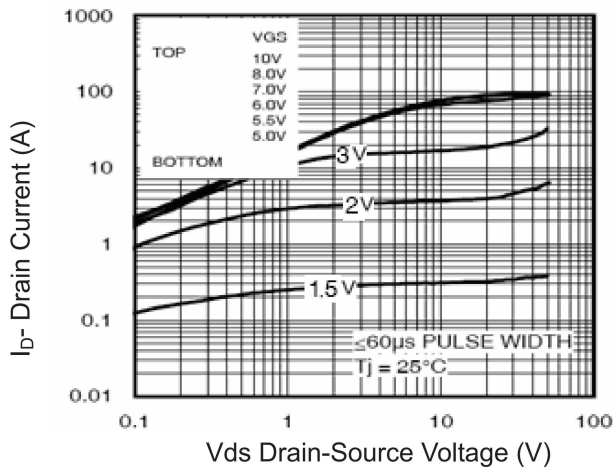


Figure 1 Output Characteristics

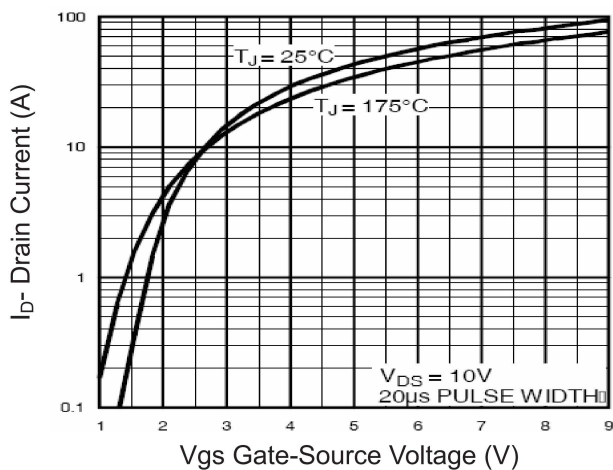


Figure 2 Transfer Characteristics

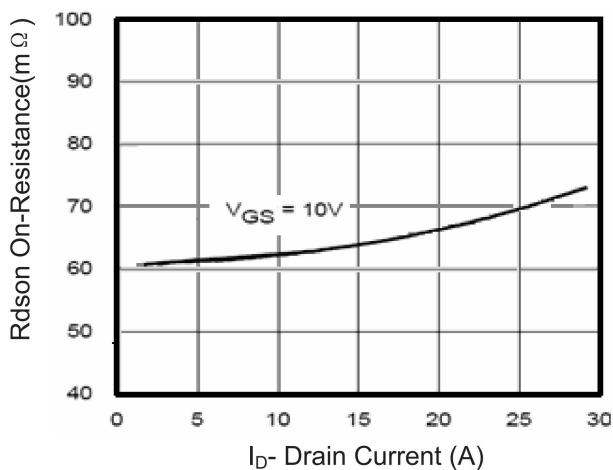


Figure 3 Rdson- Drain Current

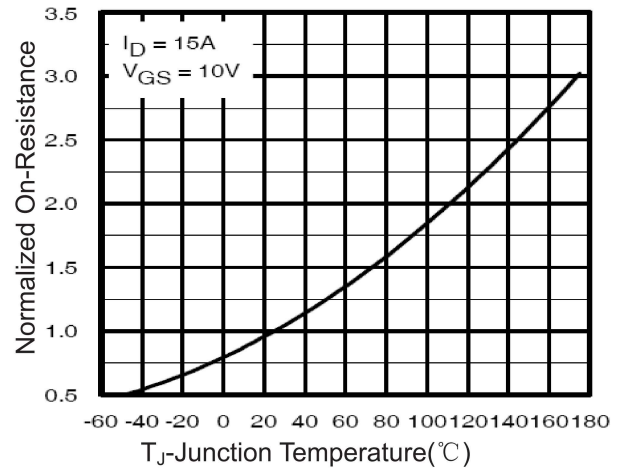


Figure 4 Rdson-Junction Temperature

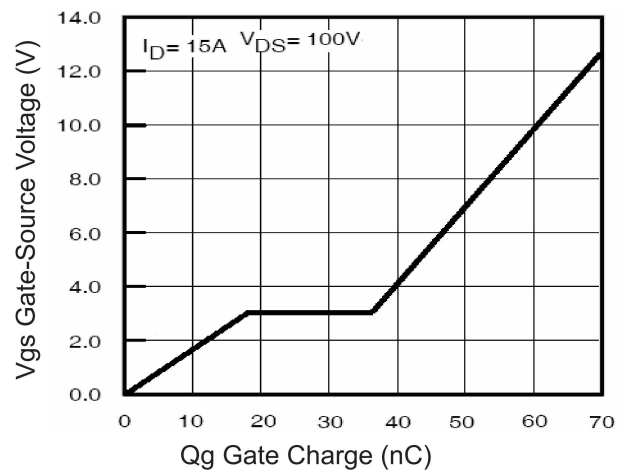


Figure 5 Gate Charge

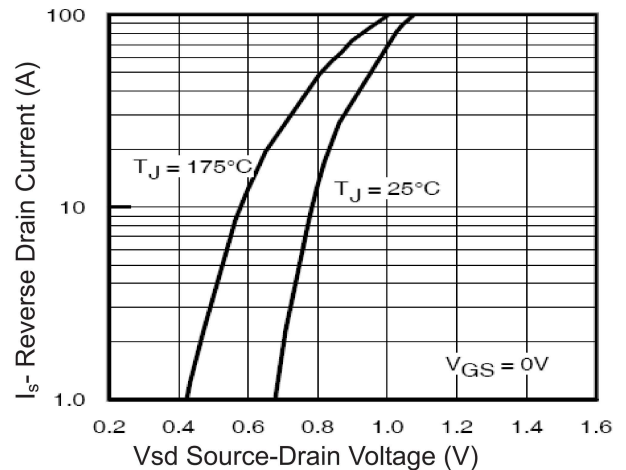
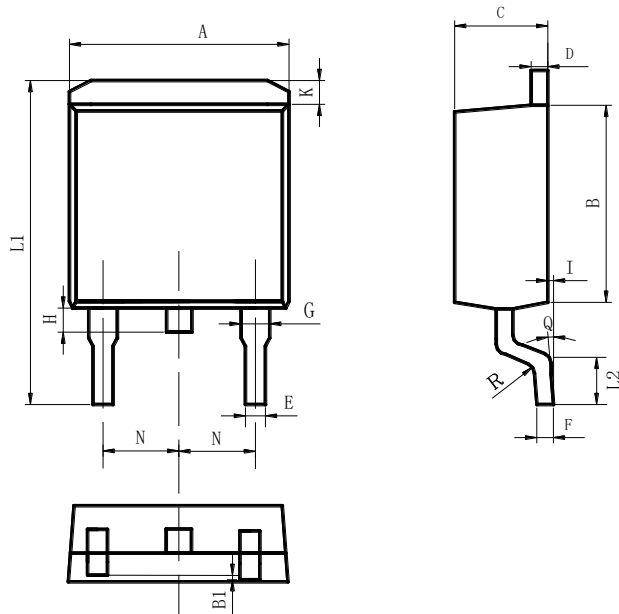


Figure 6 Source- Drain Diode Forward

Package Mechanical Data-TO-263 Single



Items	Values(mm)	
	MIN	MAX
A	9.80	10.40
B	8.90	9.50
B1	0	0.10
C	4.40	4.80
D	1.16	1.37
E	0.70	0.95
F	0.30	0.60
G	1.07	1.47
H	1.30	1.80
K	0.95	1.37
L1	14.50	16.50
L2	1.90	2.90
I	0	0.2
Q	0°	8°
R	0.4	
N	2.39	2.69