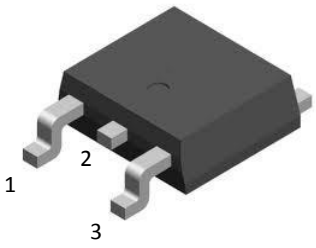
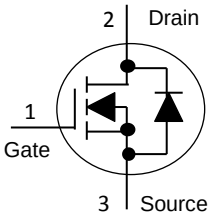
200V / 18A N-Channel Enhancement Mode MOSFET	200V, $R_{DS(ON)}$=92mΩ@V_{GS}=10V, I_D=10A

Features

- Low On-State Resistance
- Excellent Gate Charge x $R_{DS(ON)}$ Product (FOM)
- Fully Characterized Avalanche Voltage and Current
- Specially Desigened for DC-DC Converter, Off-line UPS, Automotive System, Solenoid and Motor Control
- In compliance with EU RoHs 2002/95/EC Directives

TO-252





Mechanical Information

- Case: TO-252 Molded Plastic
- Terminals : Solderable per MIL-STD-750,Method 2026

Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY18N20D	18N20D	TO-252	2.5K/REEL

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current	T_C=25℃	I_D	18	A
Pulsed Drain Current [1)]		I_{DM}	72	A
Maximum Power Dissipation Derating Factor	T_C=25℃	P_D	48 0.38	W
Avalanche Energy with Single Pulse, L=3mH		E_{AS}	125	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	℃

Note : 1. Maximum DC current limited by the package

Thermal Characteristics

Parameter	Symbol	Value	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	2.6	℃/W
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	50	℃/W

Electrical Characteristics (T_C=25, Unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V、I_D=250uA	200	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}、I_D=250uA	1	-	3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V、I_D=10A	-	80	92	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=160V、V_{GS}=0V	-	-	1	uA
Gate Body Leakage Current	I_{GSS}	V_{GS}=±24V、V_{DS}=0V	-	-	100	nA
Dynamic						
Total Gate Charge	Qg	V_{DS}=100V，I_D=10A V_{GS}=10V	-	26.2	-	nC
Gate-Source Charge	Qgs		-	5.8	-	
Gate-Drain Charge	Qgd		-	11.2	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=100V，I_D=10A V_{GS}=10V，R_G=3.6Ω	-	12.2	-	ns
Turn-On Rise Time	t_r		-	8.6	-	
Turn-Off Delay Time	$t_{d(off)}$		-	26	-	
Turn-Off Fall Time	t_f		-	9.2	-	
Input Capacitance	C_{iss}	V_{DS}=30V，V_{GS}=0V f=1.0MH_Z	-	840	-	pF
Output Capacitance	C_{oss}		-	55	-	
Reverse Transfer Capacitance	C_{rss}		-	32	-	
Gate Resistance	Rg		-	1.5	-	Ω
Source-Drain Diode						
Max. Diode Forwad Voltage	I_S	-	-	-	18	A
Diode Forward Voltage	V_{SD}	I_S=18A、V_{GS}=0V	-	0.85	1.4	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V、I_S=18A di/dt=100A/us	-	76	-	ns
Reverse Recovery Charge	Q_{rr}		-	265	-	uC

NOTE : Pulse Test : Pulse Width ≦ 300us, duty cycle ≦ 2%

Typical Characteristics Curves (T_C=25℃, unless otherwise noted)

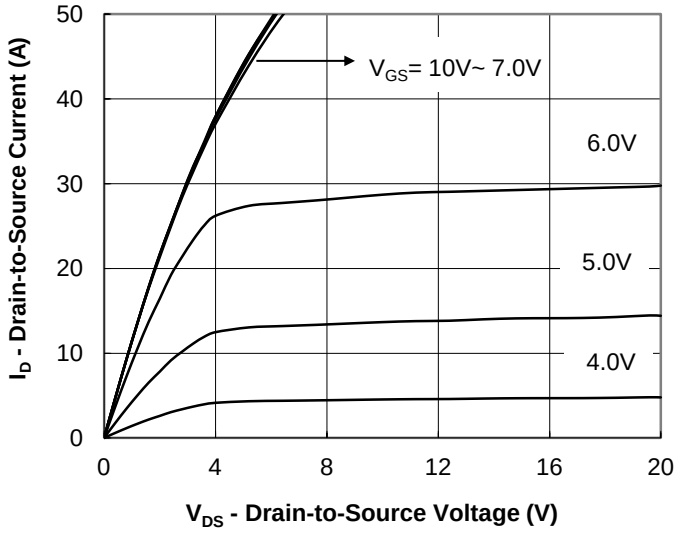


Fig.1 Output Characteristic

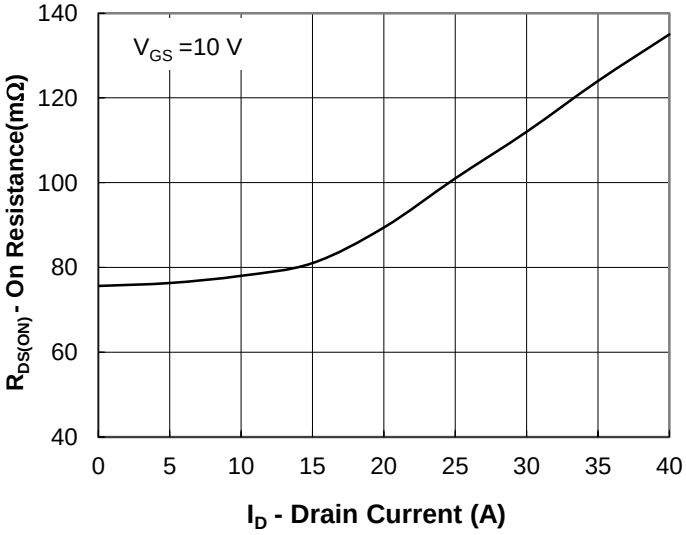


Fig.2 On-Resistance vs Drain Current

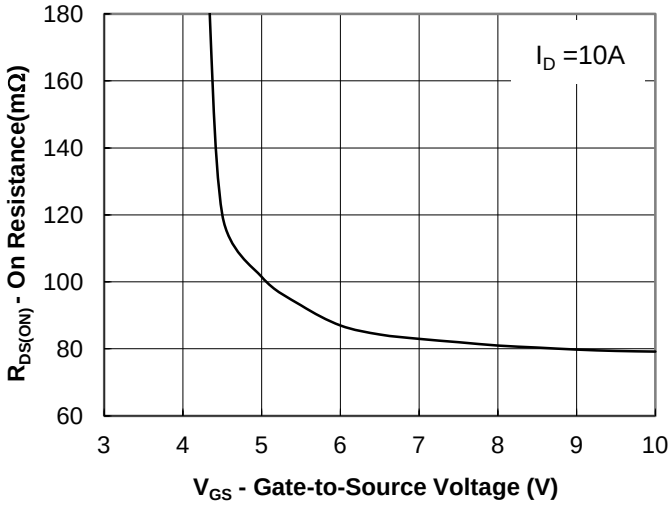


Fig.3 On-Resistance vs Gate to Source Voltage

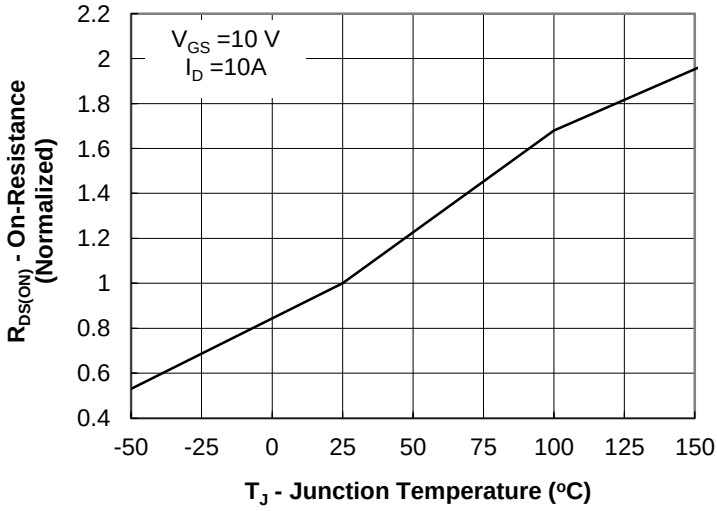


Fig.4 On-Resistance vs Junction Temperature

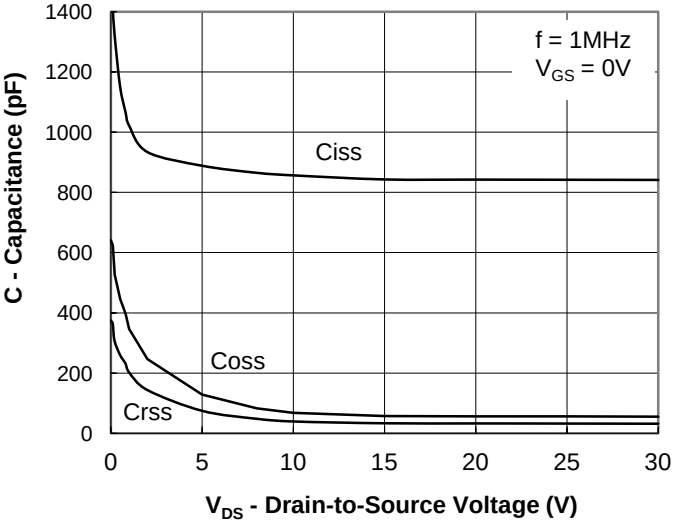


Fig.5 Capacitance Characteristic

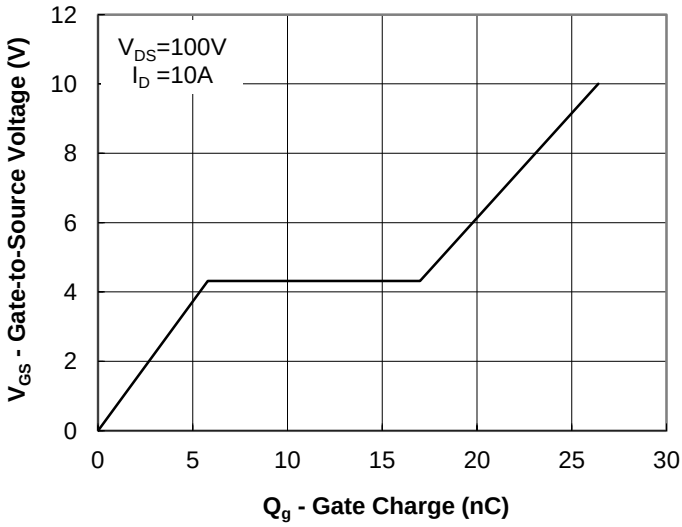


Fig.6 Gate Charge Characteristic

Typical Characteristics Curves (T_C=25℃, unless otherwise noted)

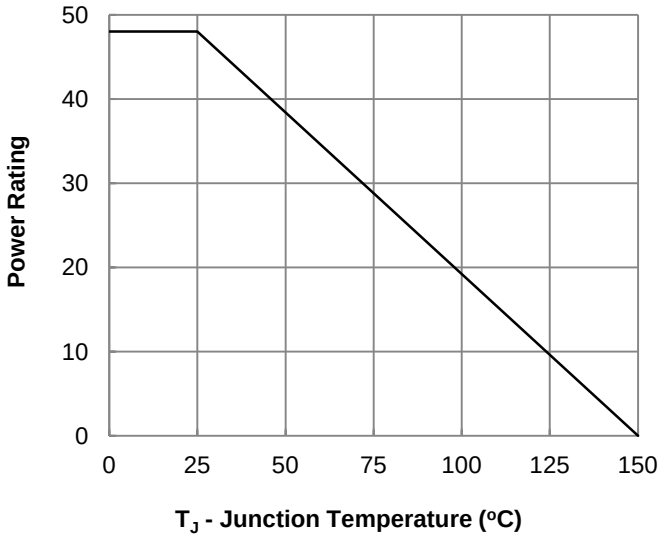


Fig.7 Power Derating Curve

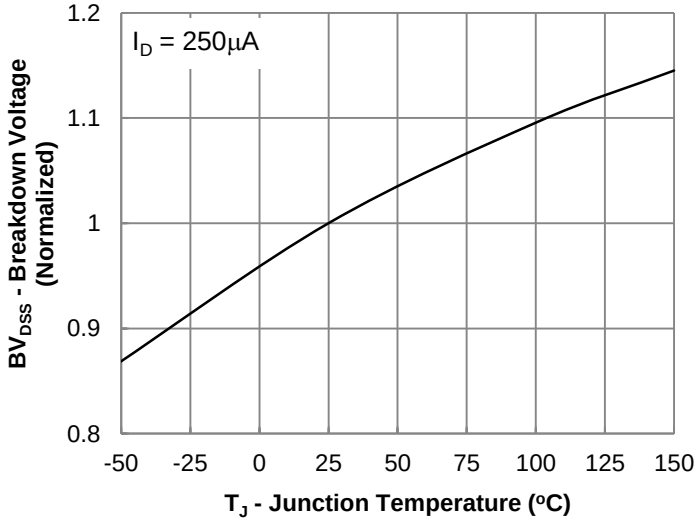


Fig.8 Breakdown Voltage vs Junction Temperature

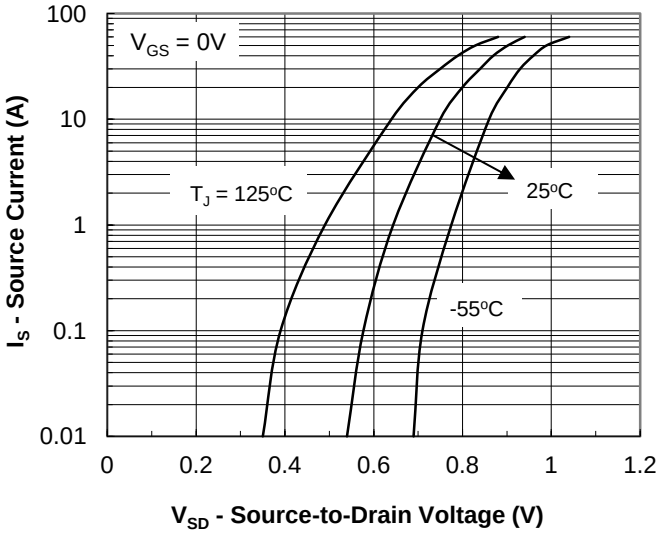


Fig.9 Body Diode Forward Voltage Characteristic