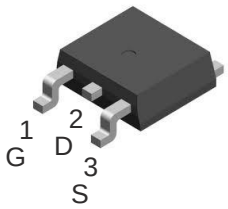
650V / 2A N-Channel Enhancement Mode MOSFET	650V, $R_{DS(ON)}$=4.6Ω@V_{GS}=10V, I_D=1A

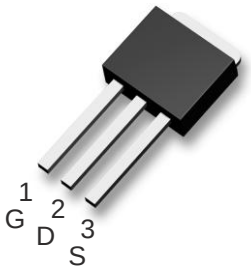
Features

- Low On-State Resistance
- Fast Switching
- Low Gate Charge & Low C_{RSS}
- Fully Characterized Avalanche Voltage and Current
- Specially Desigened for AC Adapter, Battery Charger and SMPS
- In compliance with EU RoHs 2002/95/EC Directives

TO-252

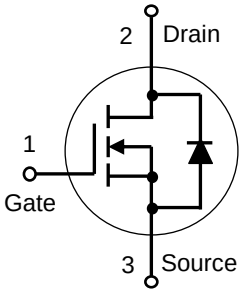


TO-251



Mechanical Information

- Case: TO-252 / TO-251 Molded Plastic
- Terminals : Solderable per MIL-STD-750,Method 2026



Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY2N65D	2N65D	TO-252	2500PCS/REEL
HY2N65M	2N65M	TO-251	80PCS/TUBE

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

Parameter		Symbol	HY2N65D	HY2N65M	Units
Drain-Source Voltage		V_{DS}	650		V
Gate-Source Voltage		V_{GS}	±30		V
Continuous Drain Current	T_C=25℃	I_D	2	2	A
Pulsed Drain Current [1)]		I_{DM}	8	8	A
Maximum Power Dissipation Derating Factor	T_C=25℃	P_D	43.8 0.35	43 0.35	W
Avalanche Energy with Single Pulse I_{AS}=2A, V_{DD}=60V, L=50mH		E_{AS}	100		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	HY2N65D	HY2N65M	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	2.85	2.9	℃/W
Junction-to-Case Thermal Resistance	$R_{\theta JA}$	50	110	℃/W

Electrical Characteristics (T_C=25℃, Unless otherwise noted)

Paramter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V、I_D=250uA	650	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}、I_D=250uA	2.0	-	4.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V、I_D=1A	-	4.1	4.6	Ω
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V、V_{GS}=0V	-	-	10	uA
Gate Body Leakage Current	I_{GSS}	V_{GS}=±30V、V_{DS}=0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Qg	V_{DS}=520V，I_D=2A V_{GS}=10V	-	6.4	8.6	nC
Gate-Source Charge	Qgs		-	1.8	-	
Gate-Drain Charge	Qgd		-	2.1	-	
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=325V，I_D=2A V_{GS}=10V，R_G=25Ω	-	13.2	16	ns
Turn-On Rise Time	t_r		-	18.6	28	
Turn-Off Delay Time	$t_{d(off)}$		-	22	38	
Turn-Off Fall Time	t_f		-	16.8	32	
Input Capacitance	C_{iss}	V_{DS}=25V，V_{GS}=0V f=1.0M_{HZ}	-	265	-	pF
Output Capacitance	C_{oss}		-	36	-	
Reverse Transfer Capacitance	C_{rss}		-	1.5	-	
Source-Drain Diode						
Max. Diode Forwad Voltage	I_S	-	-	-	2.0	A
Max. Pulsed Source Current	I_{SM}	-	-	-	8.0	A
Diode Forward Voltage	V_{SD}	I_S=2A、V_{GS}=0V	-	-	1.4	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V、I_S=2A di/dt=100A/us	-	190	-	ns
Reverse Recovery Charge	Q_{rr}		-	1.0	-	uC

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

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

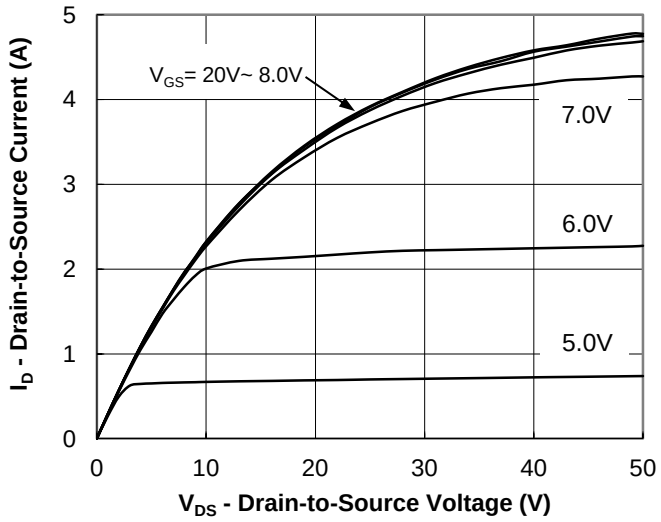


Fig.1 Output Characteristic

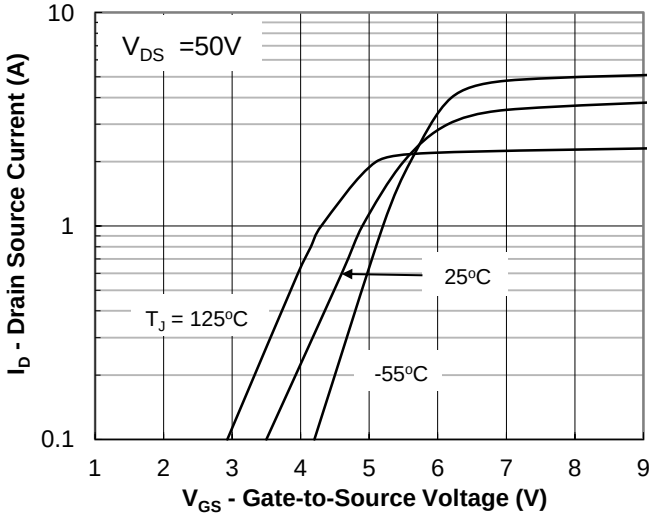


Fig.2 Transfer Characteristic

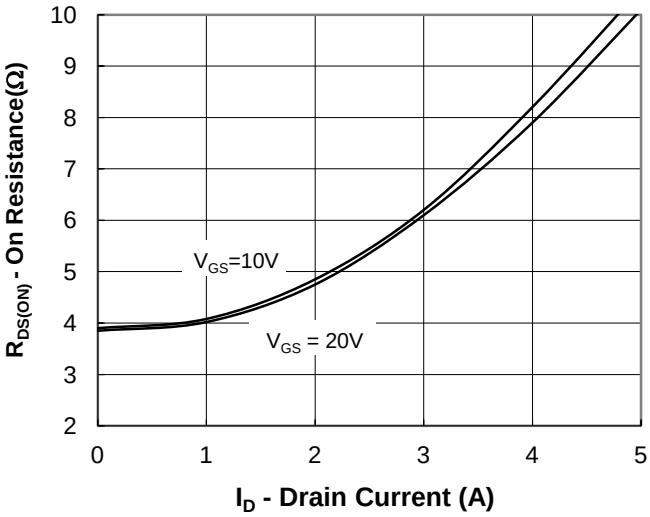


Fig.3 On-Resistance vs Drain Current

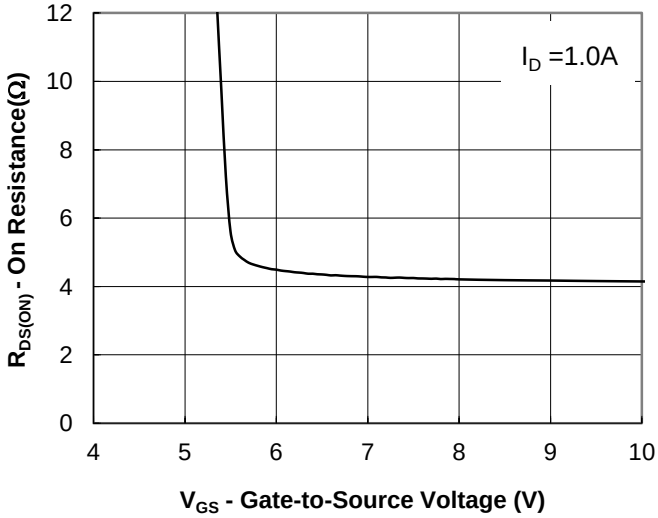


Fig.4 On-Resistance vs Gate to Source Voltage

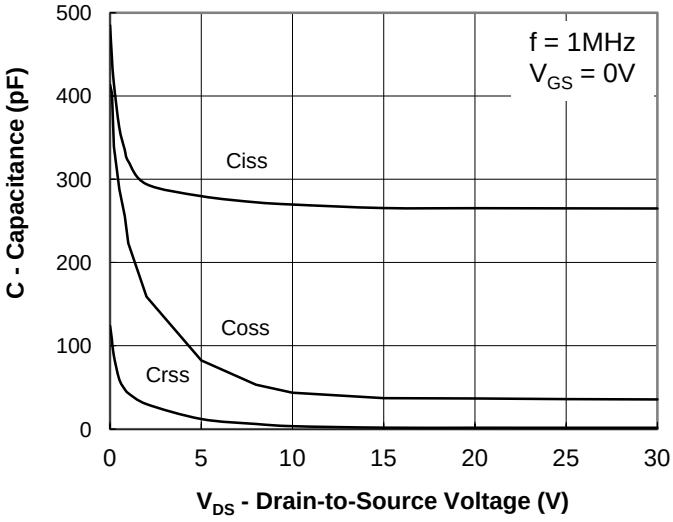


Fig.5 Capacitance Characteristic

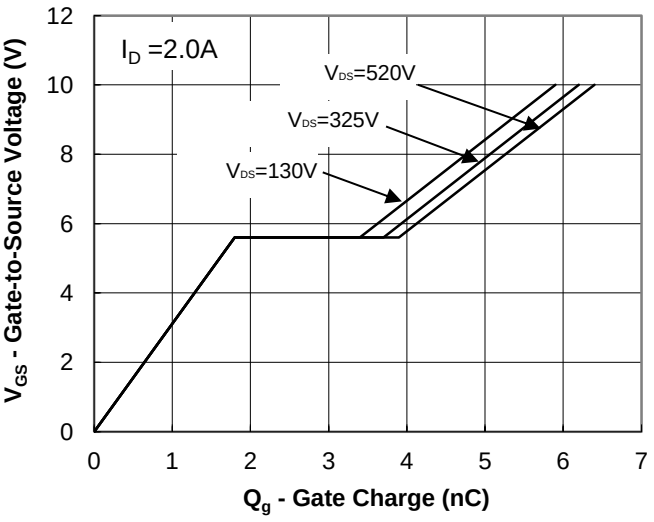


Fig.6 Gate Charge Characteristic

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

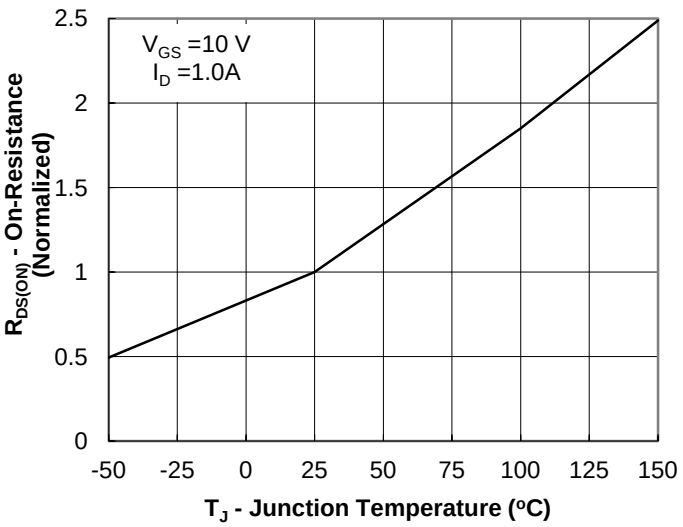


Fig.7 On-Resistance vs Junction Temperature

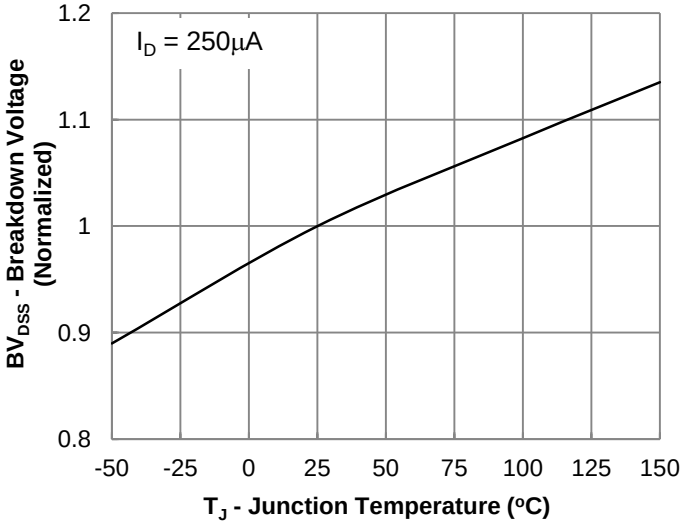


Fig.8 Breakdown Voltage vs Junction Temperature

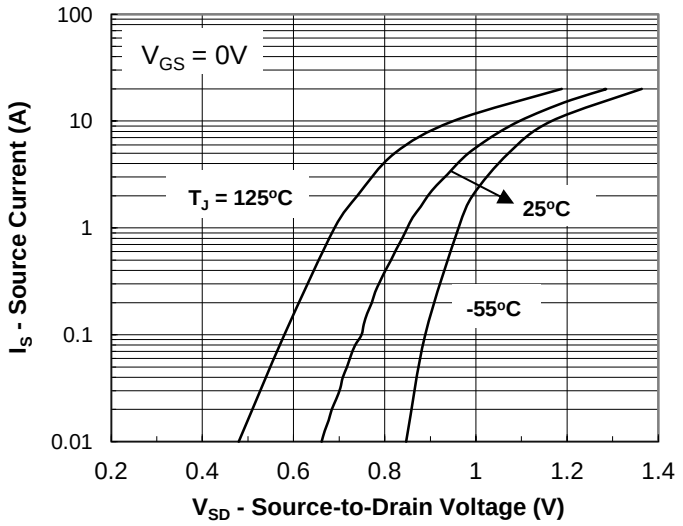


Fig.9 Body Diode Forward Voltage Characteristic