HY2N70T / HY2N70FT

700V / 2A N-Channel Enhancement Mode MOSFET	700V, $R_{DS(ON)}$=6.5Ω@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

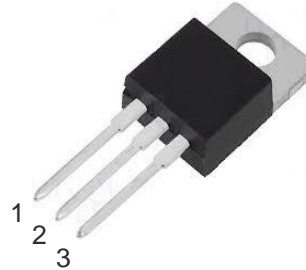• In compliance with EU RoHs 2002/95/EC Directives

Mechanical Information

• Case: TO-220AB / ITO-220AB Molded Plastic
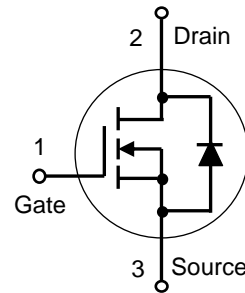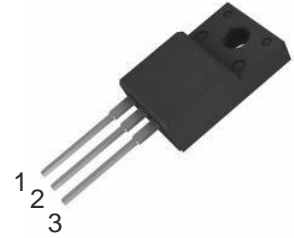
• Terminals : Solderable per MIL-STD-750,Method 2026

Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY2N70T	2N70T	TO-220AB	50PCS/TUBE
HY2N70FT	2N70FT	ITO-220AB	50PCS/TUBE

TO-220AB   ITO-220AB

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

Parameter		Symbol	HY2N70T	HY2N70FT	Units
Drain-Source Voltage		V_{DS}	700		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	44.5 0.36	19.2 0.16	W
Avalanche Energy with Single Pulse I_{AS}=2A, V_{DD}=60V, L=60mH		E_{AS}	120		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	HY2N70T	HY2N70FT	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	2.8	6.5	℃/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	700	-	-	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	-	5.0	6.5	Ω
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V、V_{GS}=0V	-	-	10	uA
Gate Body Leakage Current	I_{GSS}	V_{GS}=±30V、V_{DS}=0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Q_g	V_{DS}=560V，I_D=2A V_{GS}=10V	-	6.2	7.8	nC
Gate-Source Charge	Q_{gs}		-	1.8	-	nC
Gate-Drain Charge	Q_{gd}		-	2.3	-	nC
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=350V，I_D=2A V_{GS}=10V，R_G=25Ω	-	12.8	16	ns
Turn-On Rise Time	t_r		-	26.8	36	ns
Turn-Off Delay Time	$t_{d(off)}$		-	16.8	28	ns
Turn-Off Fall Time	t_f		-	18.8	32	ns
Input Capacitance	C_{iss}	V_{DS}=25V，V_{GS}=0V f=1.0M$_{HZ}$	-	255	-	pF
Output Capacitance	C_{oss}		-	32	-	pF
Reverse Transfer Capacitance	C_{rss}		-	1.7	-	pF
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	-	210	-	ns
Reverse Recovery Charge	Q_{rr}		-	1.1	-	uC

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

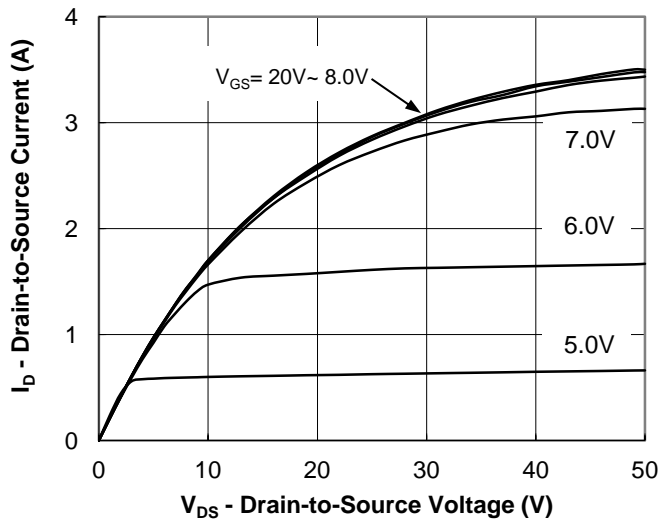## Typical Characteristics Curves (T_C=25℃, unless otherwise noted)

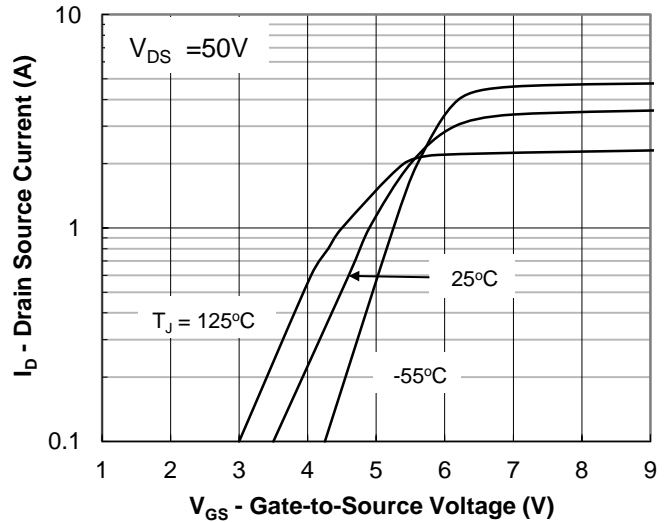**Fig.1 Output Characteristic**

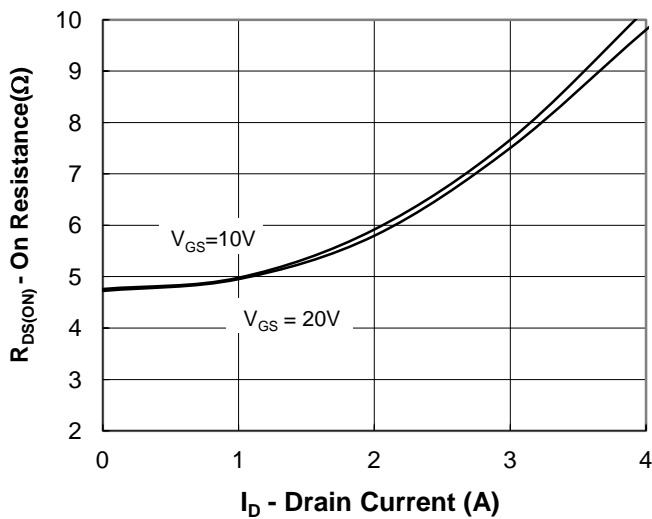**Fig.2 Transfer Characteristic**
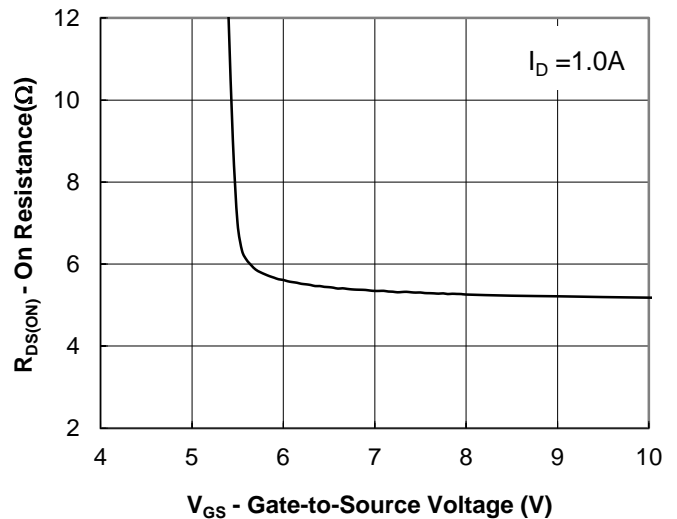
Fig.3 On-Resistance vs Drain Current
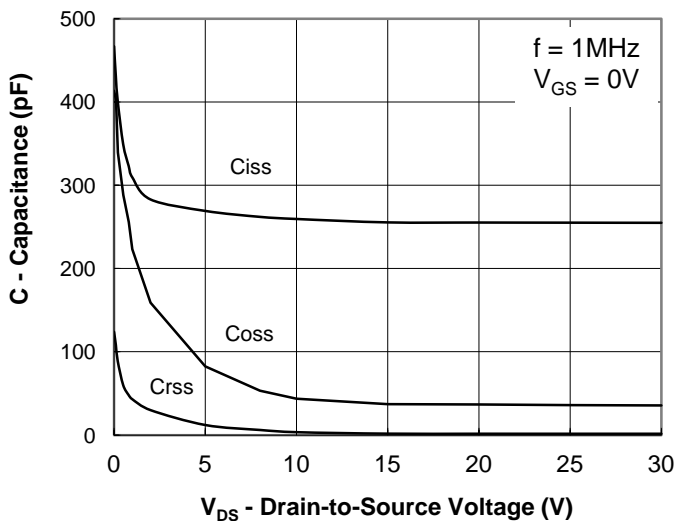
Fig.4 On-Resistance vs Gate to Source Voltage
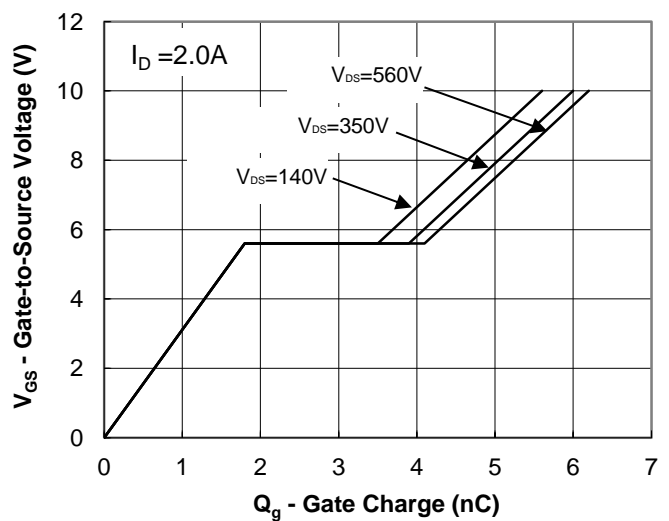
Fig.5 Capacitance Characteristic

Fig.6 Gate Charge Characteristic

Typical Characteristics Curves (T$_C$=25℃, unless otherwise noted)
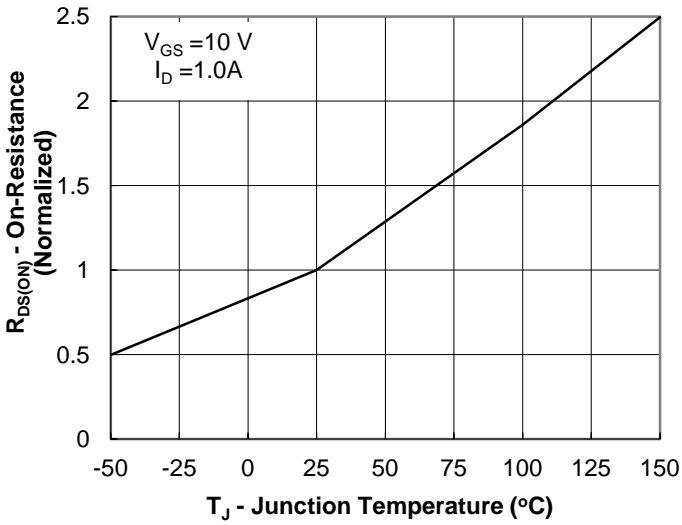
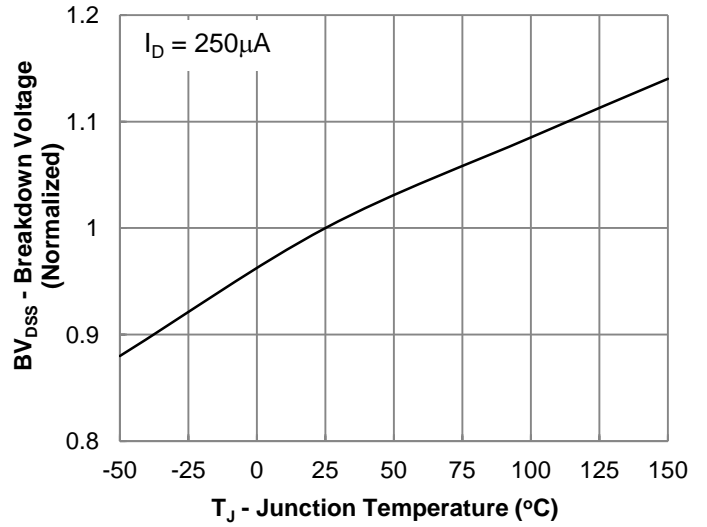

Fig.7 On-Resistance vs Junction Temperature
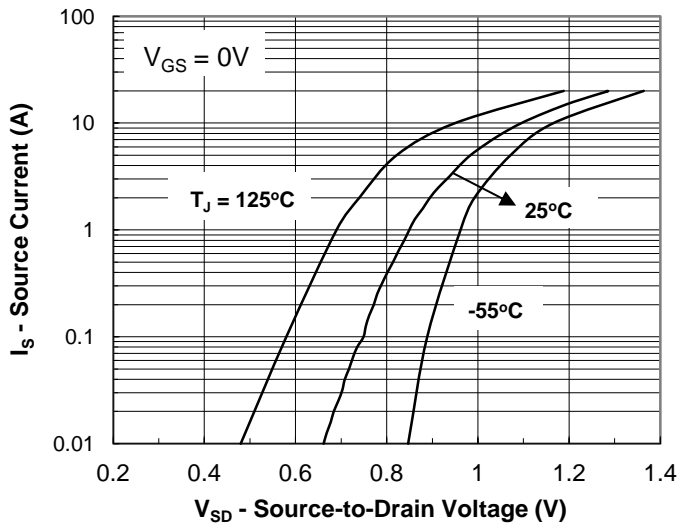

Fig.8 Breakdown Voltage vs Junction Temperature

Fig.9 Body Diode Forward Voltage Characteristic