75V / 150A
N-Channel Enhancement Mode MOSFET

75V, $R_{DS(ON)}$=4.5mΩ@V_{GS}=10V, I_D=30A

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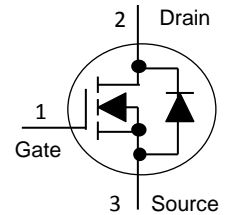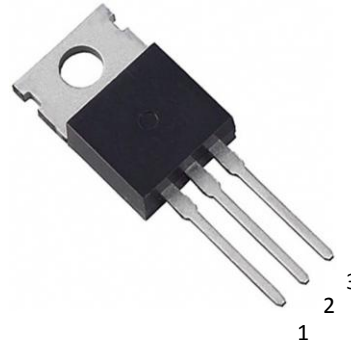
• In compliance with EU RoHs 2002/95/EC Directives

Mechanical Information

• Case: TO-220AB Molded Plastic

• Terminals : Solderable per MIL-STD-750,Method 2026

TO-220AB

Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY150N075T	150N075T	TO-220AB	50PCS/TUBE

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

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	75	V
Gate-Source Voltage		V_{GS}	$\pm$20	V
Continuous Drain Current [1]	T_C=25℃	I_D	120	A
Pulsed Drain Current [1]		I_{DM}	480	A
Maximum Power Dissipation Derating Factor	T_C=25℃	P_D	200 1.33	W
Avalanche Energy with Single Pulse, L=0.5mH		E_{AS}	650	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +175	℃

Note : 1. Maximum DC current limited by the package

Thermal Characteristics

Parameter	Symbol	Value	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	0.75	℃/W
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	62.5	℃/W

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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	75	-	-	V
Gate Threshold Voltage	V$_{GS(th)}$	V$_{DS}$=V$_{GS}$、I$_D$=250uA	2	3	4	V
Drain-Source On-State Resistance	R$_{DS(ON)}$	V$_{GS}$=10V、I$_D$=30A	-	3.5	4.5	mΩ
Zero Gate Voltage Drain Current	I$_{DSS}$	V$_{DS}$=60V、V$_{GS}$=0V	-	-	1	uA
Gate Body Leakage Current	I$_{GSS}$	V$_{GS}$=±20V、V$_{DS}$=0V	-	-	±100	nA
Dynamic						
Total Gate Charge	Qg	V$_{DS}$=30V，I$_D$=30A V$_{GS}$=10V	-	186	-	nC
Gate-Source Charge	Qgs		-	38	-	
Gate-Drain Charge	Qgd		-	42	-	
Turn-On Delay Time	t$_{d(on)}$	V$_{DD}$=30V，I$_D$=30A V$_{GS}$=10V，R$_G$=3.6Ω	-	32.2	-	ns
Turn-On Rise Time	t$_r$		-	42.8	-	
Turn-Off Delay Time	t$_{d(off)}$		-	86	-	
Turn-Off Fall Time	t$_f$		-	48	-	
Input Capacitance	C$_{iss}$	V$_{DS}$=30V，V$_{GS}$=0V f=1.0MH$_Z$	-	8850	-	pF
Output Capacitance	C$_{oss}$		-	820	-	
Reverse Transfer Capacitance	C$_{rss}$		-	330	-	
Gate Resistance	Rg		-	1.2	-	Ω
Source-Drain Diode						
Max. Diode Forwad Voltage	I$_S$	-	-	-	120	A
Diode Forward Voltage	V$_{SD}$	I$_S$=30A、V$_{GS}$=0V	-	0.78	1.4	V
Reverse Recovery Time	t$_{rr}$	V$_{GS}$=0V、I$_S$=30A di/dt=100A/us	-	125	-	ns
Reverse Recovery Charge	Q$_{rr}$		-	320	-	uC

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

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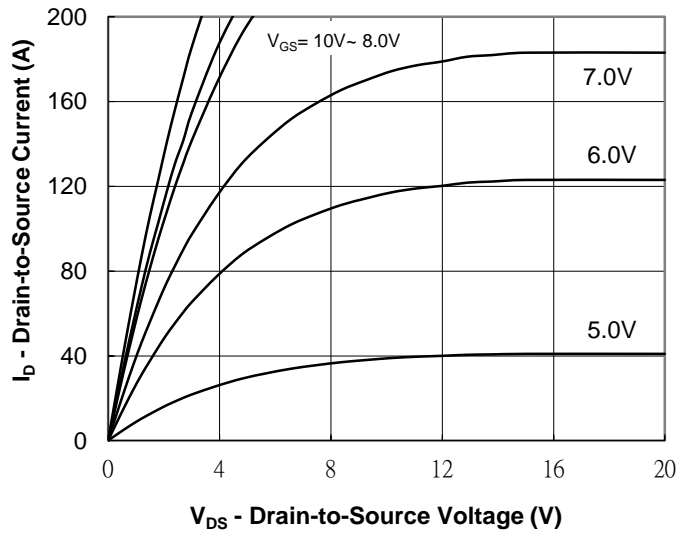

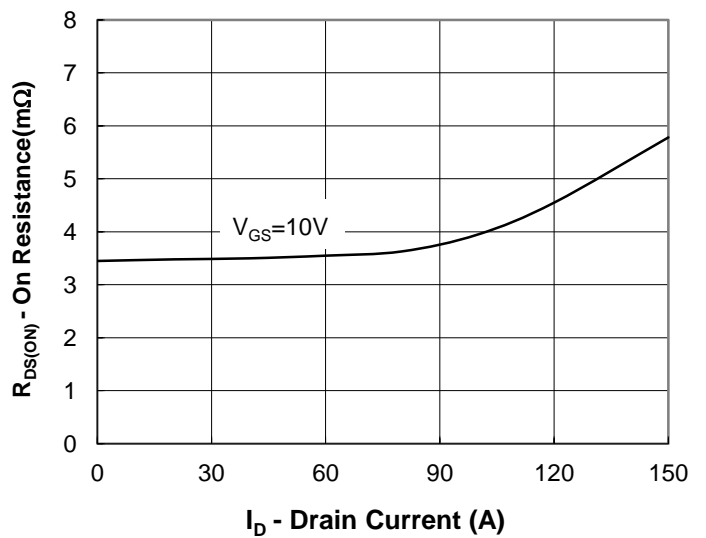**Fig.1 Output Characteristic**

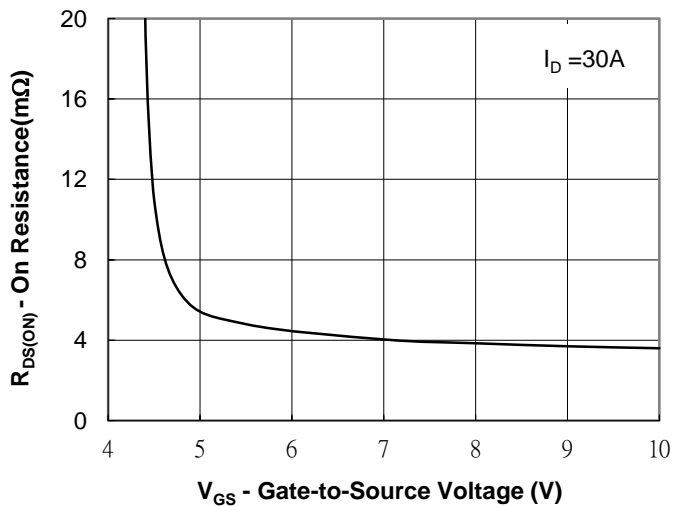**Fig.2 On-Resistance vs Drain Current**

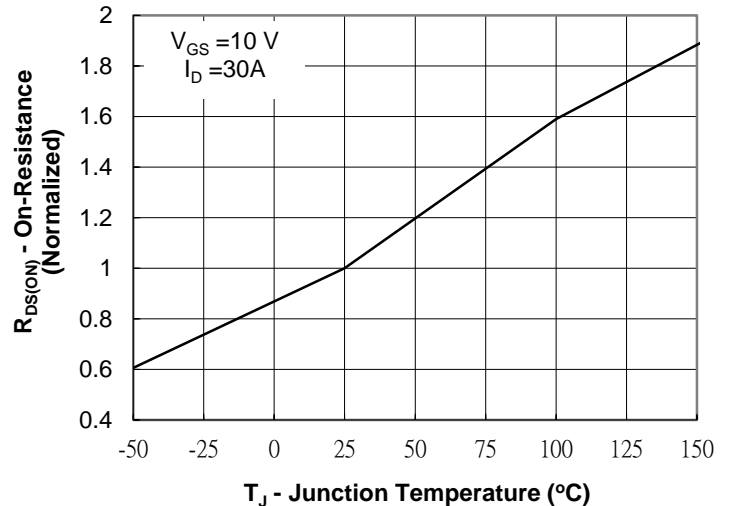**Fig.3 On-Resistance vs Gate to Source Voltage**

Fig.4 On-Resistance vs Junction Temperature
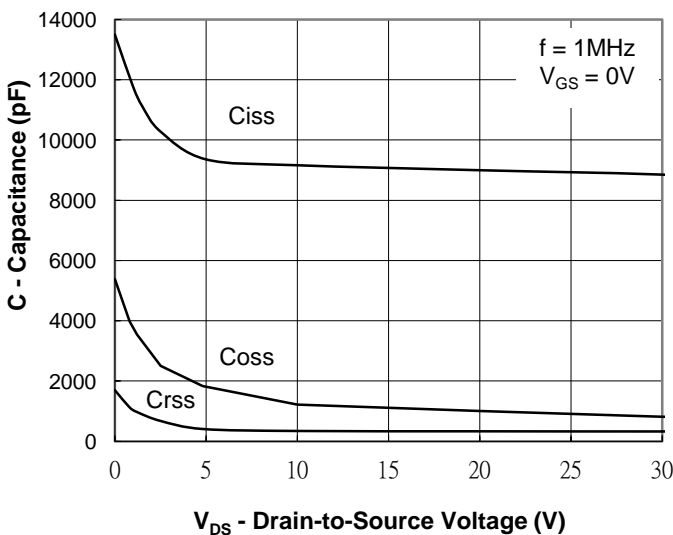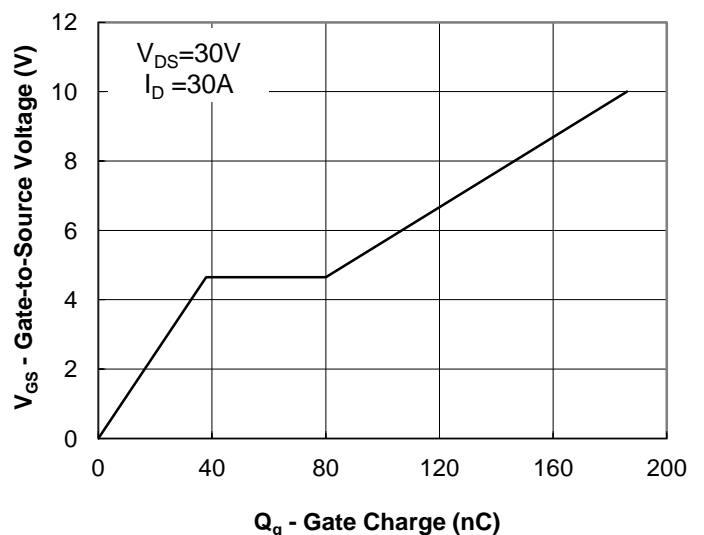

Fig.5 Capacitance Characteristic

Fig.6 Gate Charge Characteristic

Typical Characteristics Curves (T$_C$=25℃, unless otherwise noted)
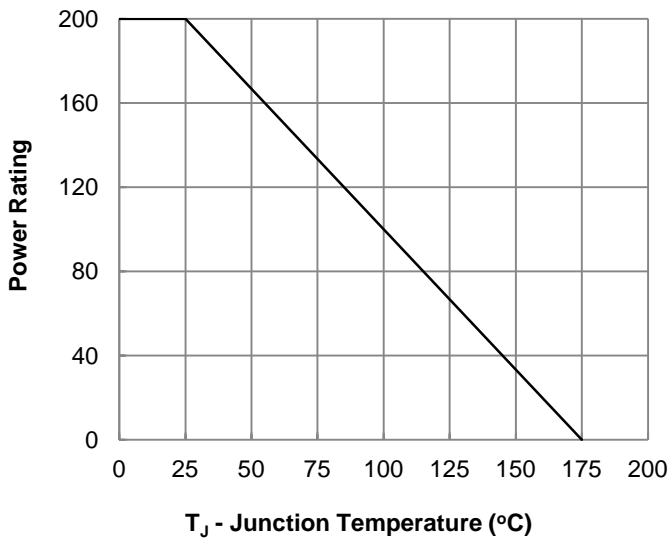
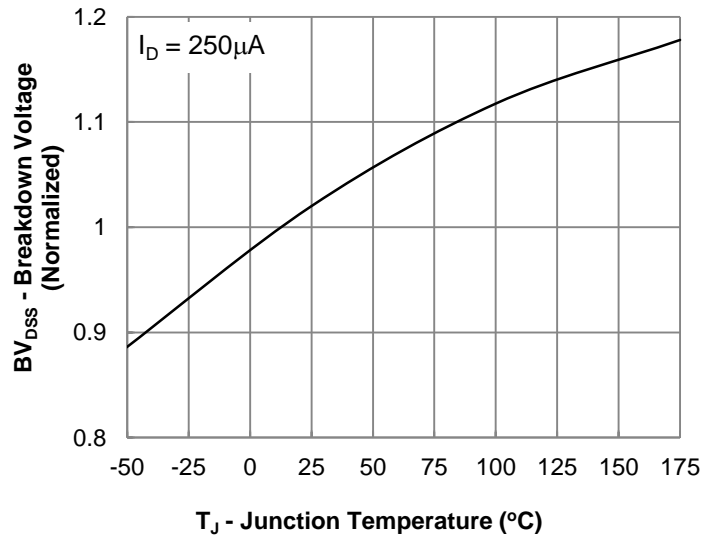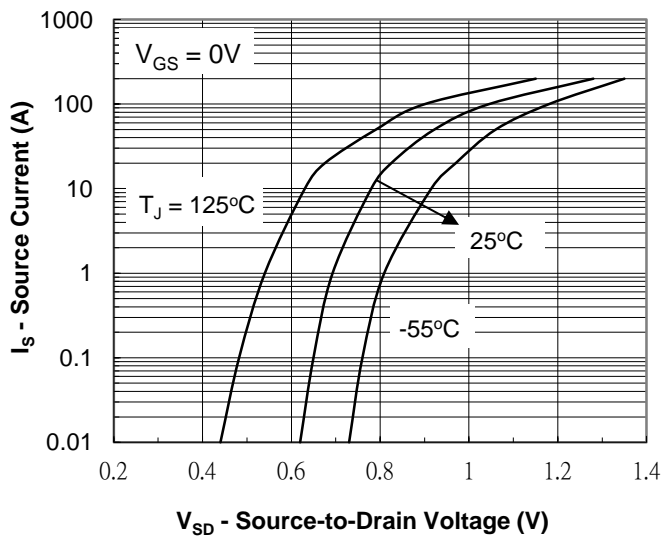**Fig.7 Power Derating Curve**

Fig.8 Breakdown Voltage vs Junction Temperature

Fig.9 Body Diode Forward Voltage Characteristic