

75V / 80A
N-Channel Enhancement Mode MOSFET

75V, $R_{DS(ON)}=8.0m\Omega@V_{GS}=10V, I_D=40A$

Features

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

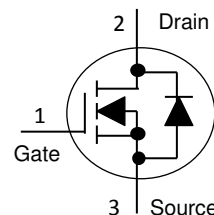
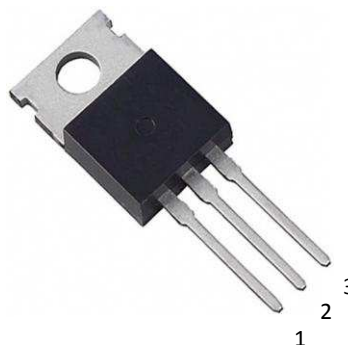
Mechanical Information

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

Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY80N075T	80N075T	TO-220AB	50PCS/TUBE

TO-220AB



Absolute Maximum Ratings ($T_C=25^{\circ}C$ unless otherwise specified)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	75	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	80	A
Pulsed Drain Current ¹⁾		I_{DM}	320	A
Maximum Power Dissipation	$T_C=25^{\circ}C$	P_D	125	W
Derating Factor			0.83	
Avalanche Energy with Single Pulse, $L=0.3mH$		E_{AS}	380	mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +175	$^{\circ}C$

Note : 1. Maximum DC current limited by the package

Thermal Characteristics

Parameter	Symbol	Value	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.2	$^{\circ}C/W$
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	62.5	$^{\circ}C/W$

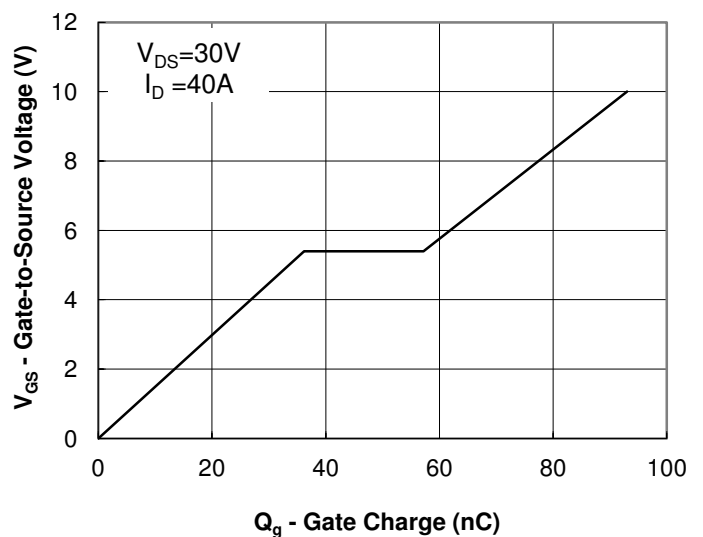
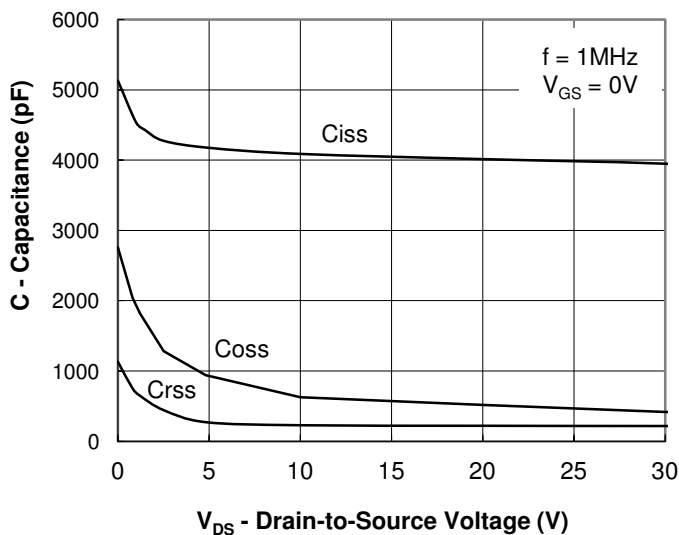
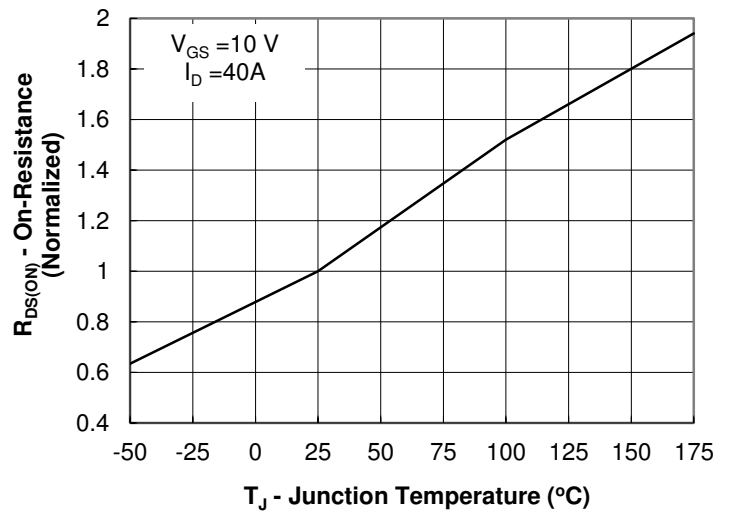
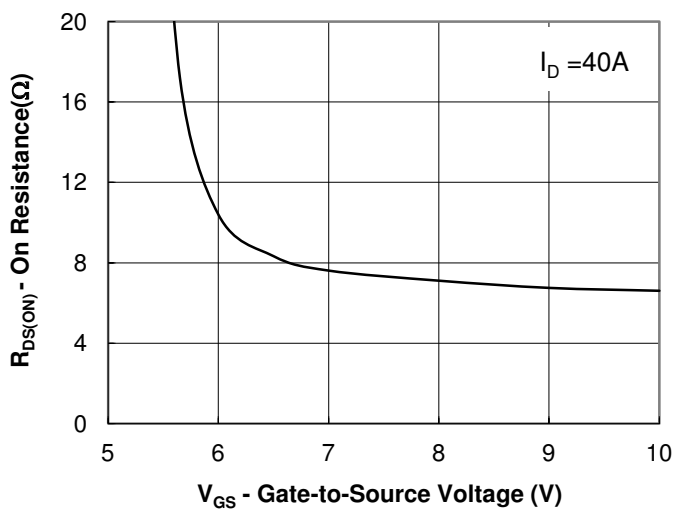
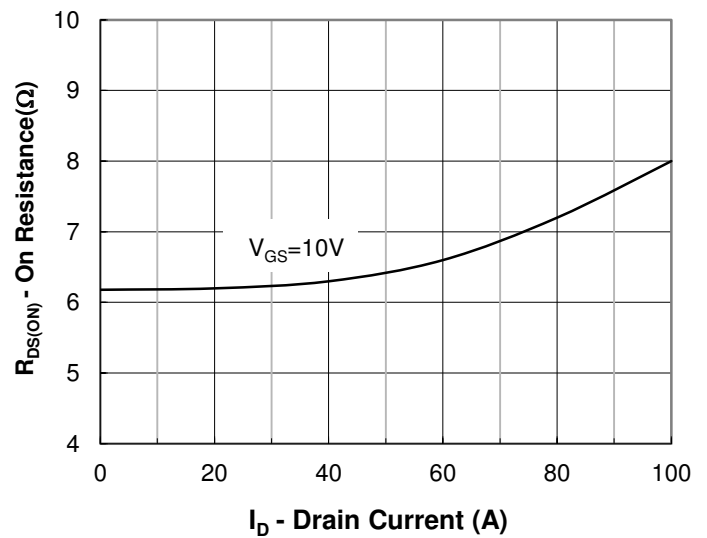
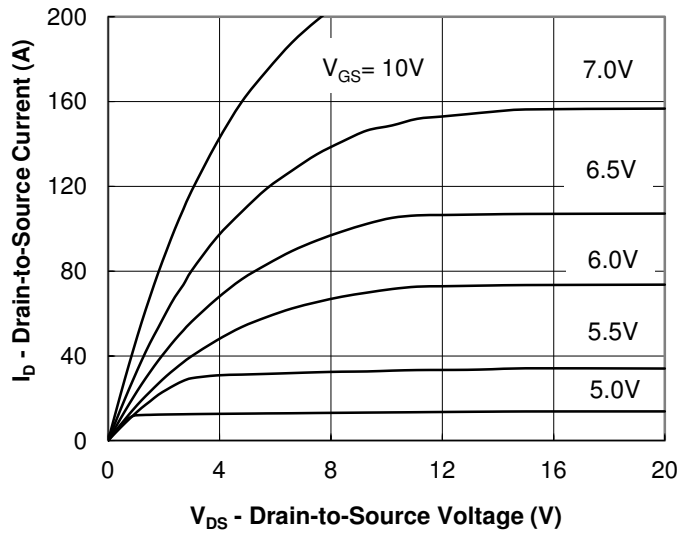
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Electrical Characteristics ($T_C=25$, Unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ 、 $I_D=250\mu A$	75	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ 、 $I_D=250\mu A$	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V$ 、 $I_D=40A$	-	6.1	8.0	$m\Omega$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ 、 $V_{GS}=0V$	-	-	1	μA
Gate Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V$ 、 $V_{DS}=0V$	-	-	100	nA
Dynamic						
Total Gate Charge	Qg	$V_{DS}=30V$ 、 $I_D=40A$ $V_{GS}=10V$	-	92	-	nC
Gate-Source Charge	Qgs		-	36.2	-	
Gate-Drain Charge	Qgd		-	21	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V$ 、 $I_D=40A$ $V_{GS}=10V$ 、 $R_G=3.6\Omega$	-	22.8	-	ns
Turn-On Rise Time	t_r		-	18.2	-	
Turn-Off Delay Time	$t_{d(off)}$		-	76	-	
Turn-Off Fall Time	t_f		-	58	-	
Input Capacitance	C_{iss}	$V_{DS}=30V$ 、 $V_{GS}=0V$ $f=1.0MHz$	-	3950	-	pF
Output Capacitance	C_{oss}		-	420	-	
Reverse Transfer Capacitance	C_{rss}		-	220	-	
Gate Resistance	Rg		-	1.3	-	Ω
Source-Drain Diode						
Max. Diode Forward Voltage	I_S	-	-	-	80	A
Diode Forward Voltage	V_{SD}	$I_S=40A$ 、 $V_{GS}=0V$	-	0.82	1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V$ 、 $I_S=40A$ $di/dt=100A/\mu s$	-	48	-	ns
Reverse Recovery Charge	Q_{rr}		-	122	-	μC

NOTE : Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Characteristics Curves ($T_C=25^{\circ}\text{C}$, unless otherwise noted)



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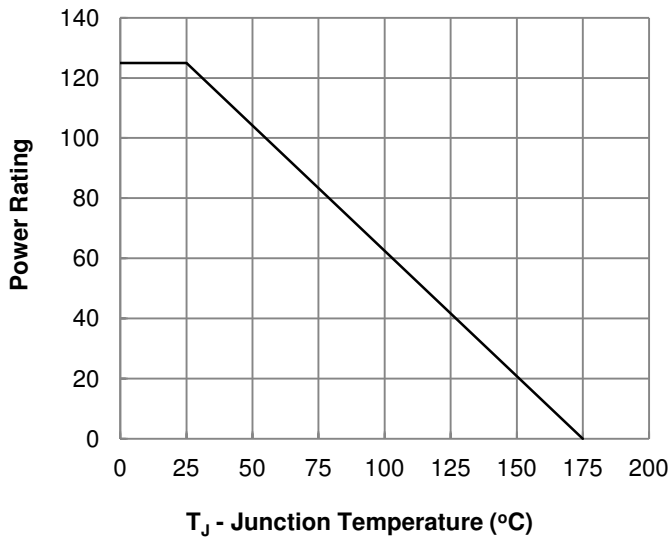


Fig.7 Power Derating Curve

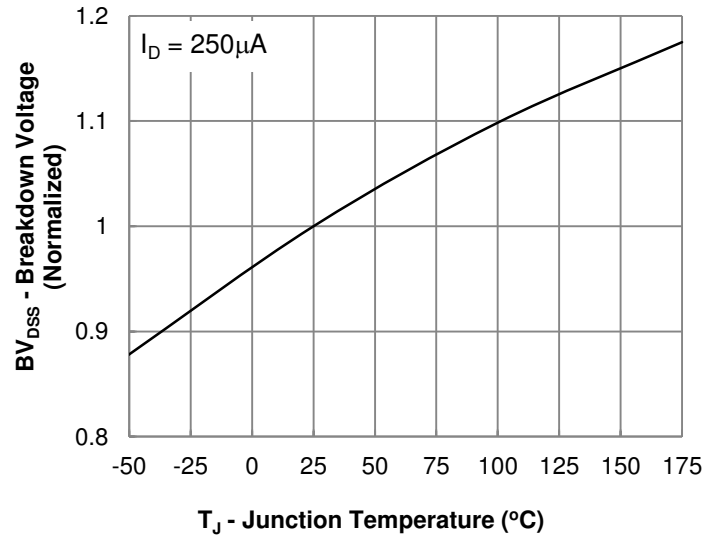


Fig.8 Breakdown Voltage vs Junction Temperature

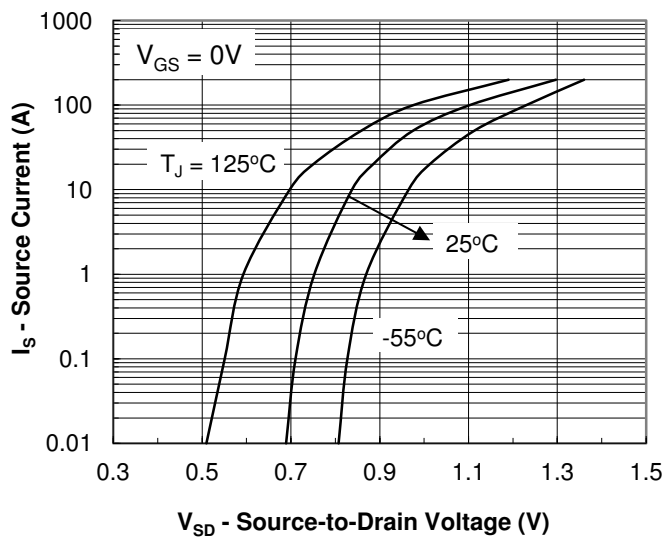


Fig.9 Body Diode Forward Voltage Characteristic