

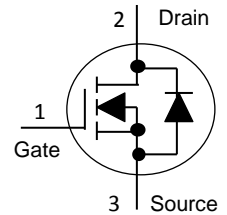
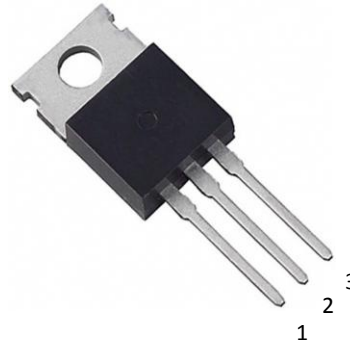
75V / 75A
N-Channel Enhancement Mode MOSFET

75V, $R_{DS(ON)}=9.0m\Omega @ V_{GS}=10V, I_D=20A$

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

TO-220AB



Mechanical Information

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

Marking & Ordering Information

TYPE	MARKING	PACKAGE	PACKING
HY75N075T	75N075T	TO-220AB	50PCS/TUBE

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

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	75	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾	I_D	75	A
Pulsed Drain Current ¹⁾	I_{DM}	300	A
Maximum Power Dissipation Derating Factor	P_D	83.3 0.56	W
Avalanche Energy with Single Pulse, $L=0.1\text{mH}$	E_{AS}	420	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^\circ\text{C}$

Note : 1. Maximum DC current limited by the package

Thermal Characteristics

Parameter	Symbol	Value	Units
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	1.8	$^\circ\text{C/W}$
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$

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Electrical Characteristics ($T_C=25^{\circ}\text{C}$, Unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V \cdot I_D=250\mu A$	75	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS} \cdot I_D=250\mu A$	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V \cdot I_D=20A$	-	7.4	9.0	m Ω
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V \cdot V_{GS}=0V$	-	-	1	μA
Gate Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V \cdot V_{DS}=0V$	-	-	± 100	nA
Dynamic						
Total Gate Charge	Qg	$V_{DS}=30V \cdot I_D=20A$ $V_{GS}=10V$	-	82	-	nC
Gate-Source Charge	Qgs		-	23.6	-	
Gate-Drain Charge	Qgd		-	22	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V \cdot I_D=20A$ $V_{GS}=10V \cdot R_G=3.6\Omega$	-	28.6	-	ns
Turn-On Rise Time	t_r		-	19.2	-	
Turn-Off Delay Time	$t_{d(off)}$		-	86	-	
Turn-Off Fall Time	t_f		-	46	-	
Input Capacitance	C_{iss}	$V_{DS}=30V \cdot V_{GS}=0V$ $f=1.0\text{MHz}$	-	4250	-	pF
Output Capacitance	C_{oss}		-	650	-	
Reverse Transfer Capacitance	C_{rss}		-	330	-	
Gate Resistance	Rg		-	1.5	-	Ω
Source-Drain Diode						
Max. Diode Forward Voltage	I_S	-	-	-	75	A
Diode Forward Voltage	V_{SD}	$I_S=20A \cdot V_{GS}=0V$	-	0.82	1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V \cdot I_S=20A$ $di/dt=100A/\mu s$	-	36	-	ns
Reverse Recovery Charge	Q_{rr}		-	55	-	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)

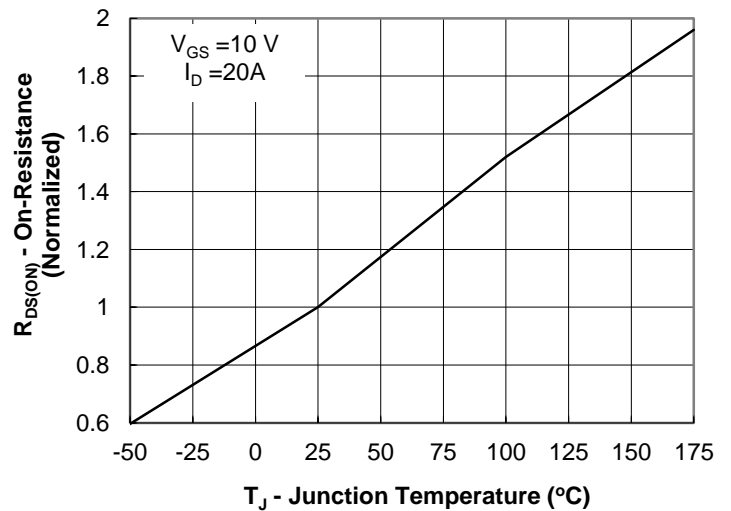
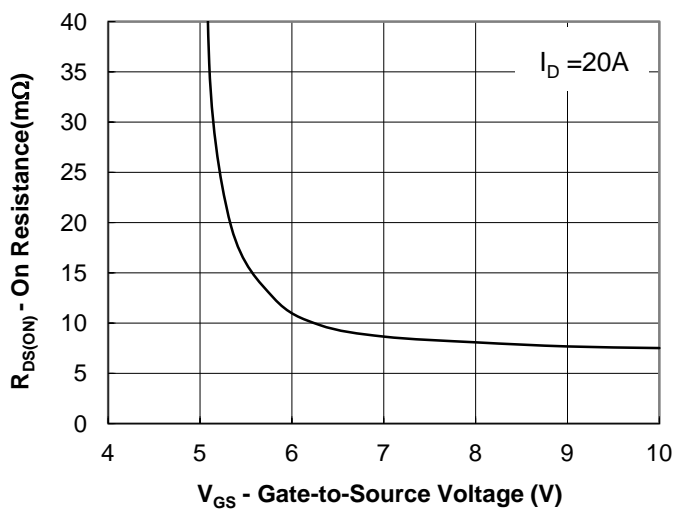
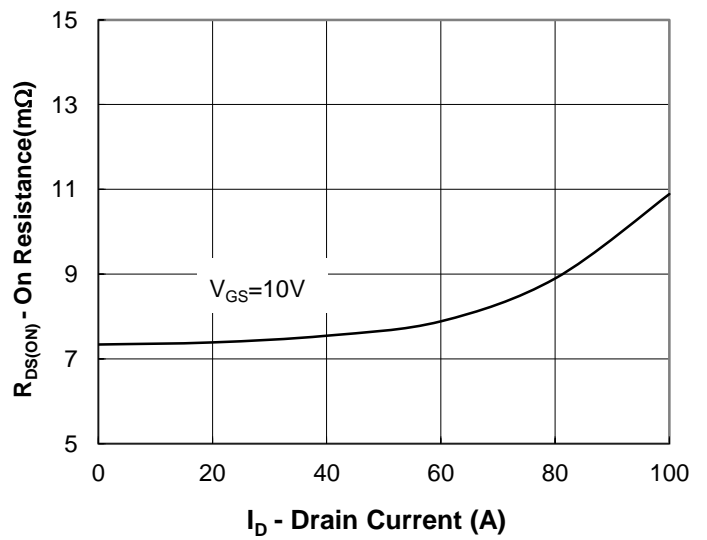
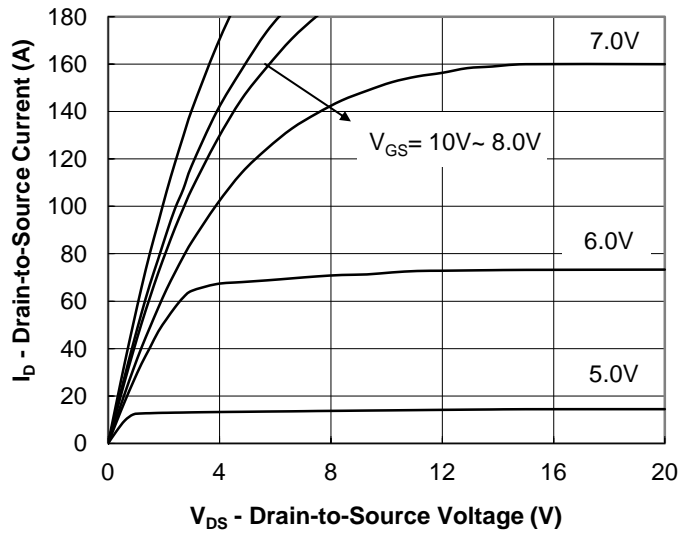


Fig.3 On-Resistance vs Gate to Source Voltage

Fig.4 On-Resistance vs Junction Temperature

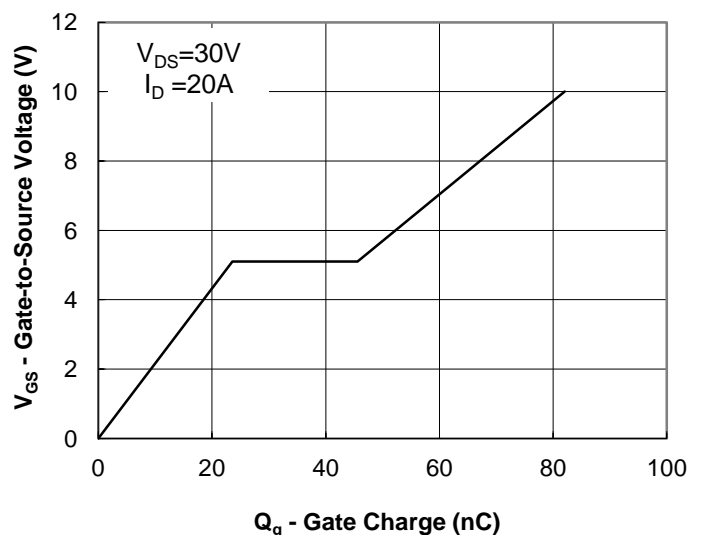
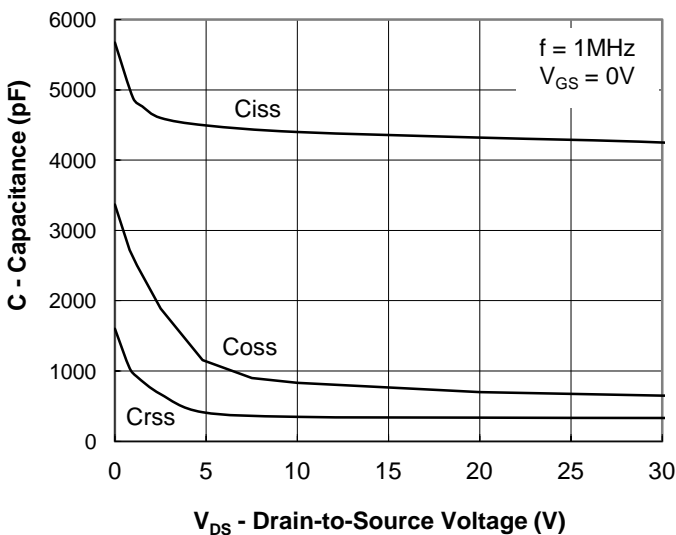


Fig.5 Capacitance Characteristic

Fig.6 Gate Charge Characteristic

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

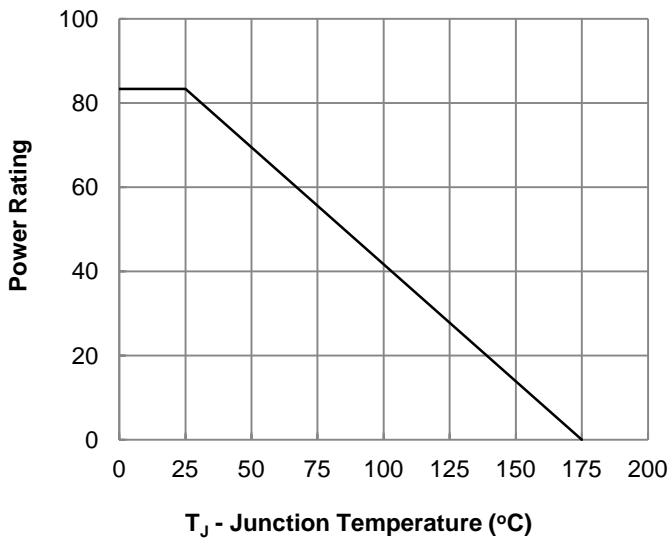


Fig.7 Power Derating Curve

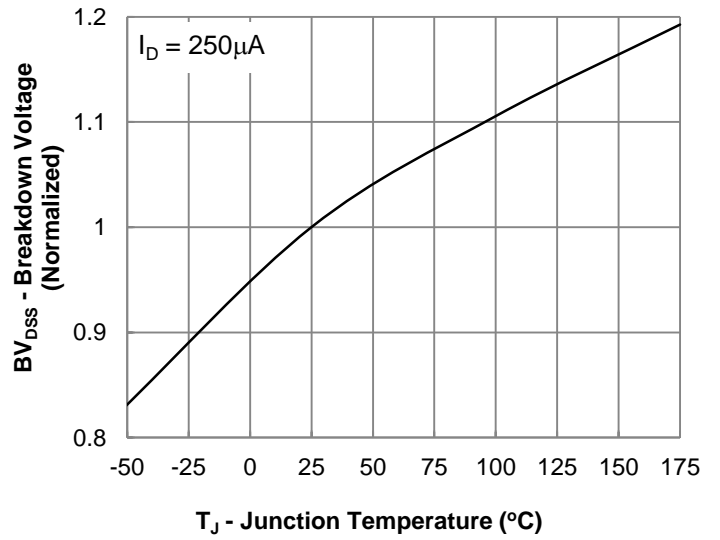


Fig.8 Breakdown Voltage vs Junction Temperature

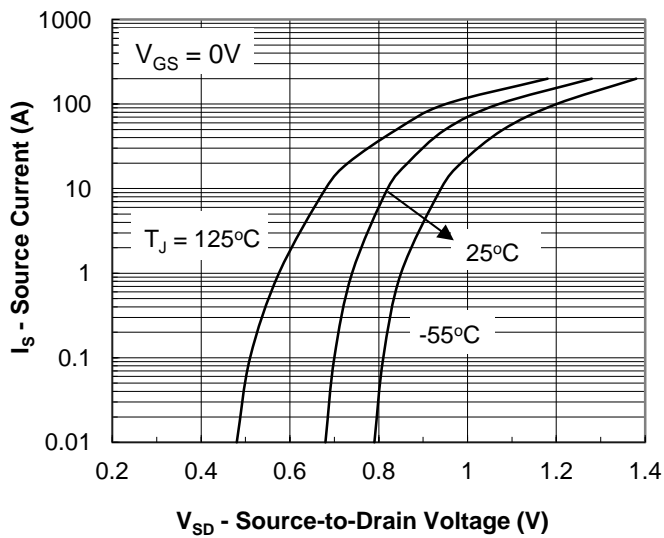


Fig.9 Body Diode Forward Voltage Characteristic