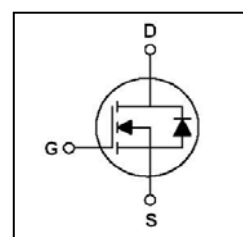
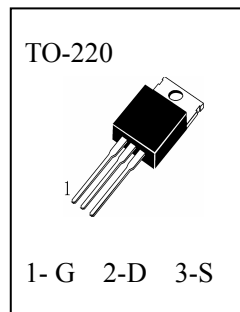


**N-Channel Enhancement Mode Field Effect Transistor****■ Applications**

- Servo motor control.
- Power MOSFET gate drivers.
- DC/DC converters
- Other switching applications.

■ Features

- 80A, 75V(See Note), $R_{DS(on)} < 11mV\Omega @ V_{GS} = 10V$
- Fast switching
- 100% avalanche tested
- Minimize input capacitance and gate charge
- Equivalent Type:ME80N75

**■ Maximum Ratings** ($T_a=25^{\circ}C$ unless otherwise specified)

T_{stg}	Storage Temperature	-----	$-55\sim 150^{\circ}C$
T_j	Operating Junction Temperature	-----	$150^{\circ}C$
V_{DSS}	Drain-Source Voltage	-----	75V
V_{GSS}	Gate-Source Voltage	-----	$\pm 20V$
I_D	Drain Current (Continuous)($T_c=25^{\circ}C$)	-----	80A
I_{DM}	Pulsed Drain Current (Note 1)	-----	300A
P_D	Maximum Power Dissipation ($T_c=25^{\circ}C$)	-----	100W
	Derate Above $25^{\circ}C$	-----	$2.0W/^{\circ}C$
E_{AS}	Pulsed Avalanche Energy (Note 2)	-----	400mJ

■ Thermal Characteristics

Symbol	Items	TO-220	Unit
$R_{thj-case}$	Thermal Resistance Junction-case	Max 2.0	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max 62.5	$^{\circ}C/W$

**Electrical Characteristics** (Ta=25°C unless otherwise specified)

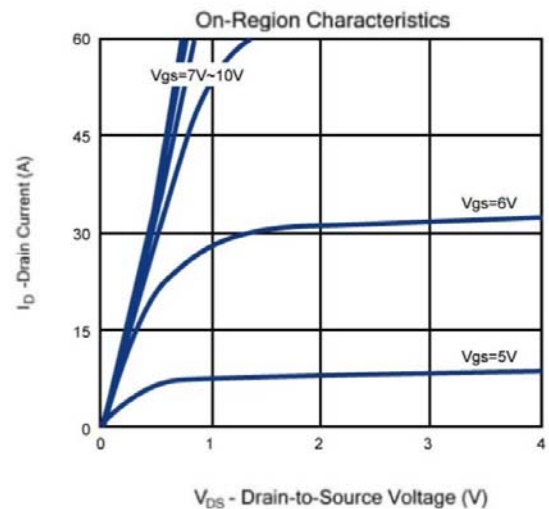
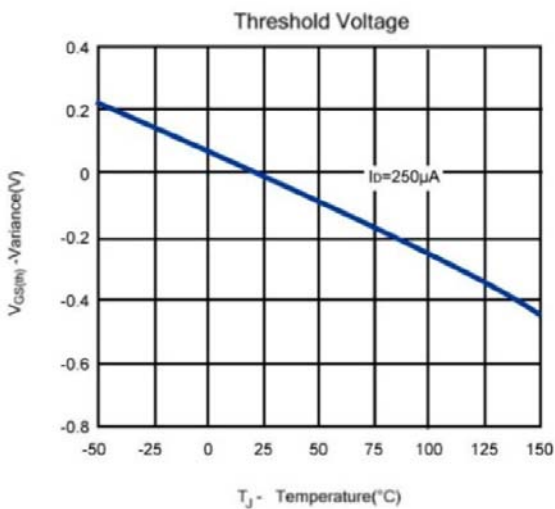
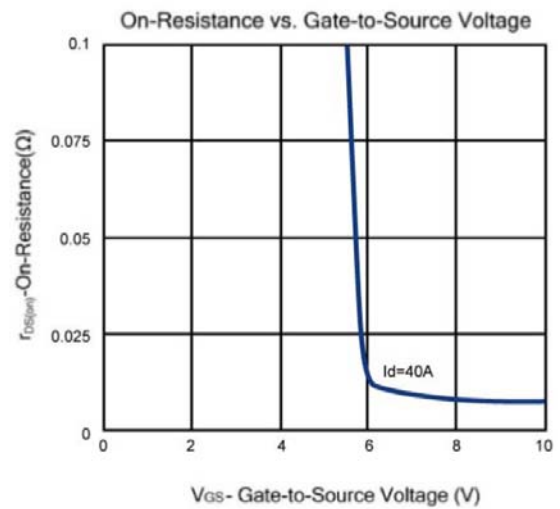
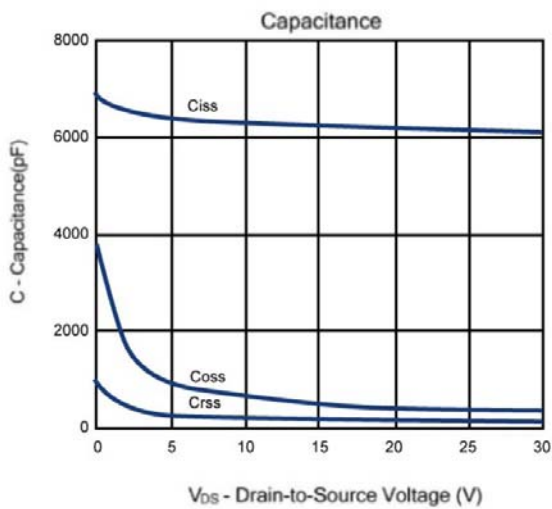
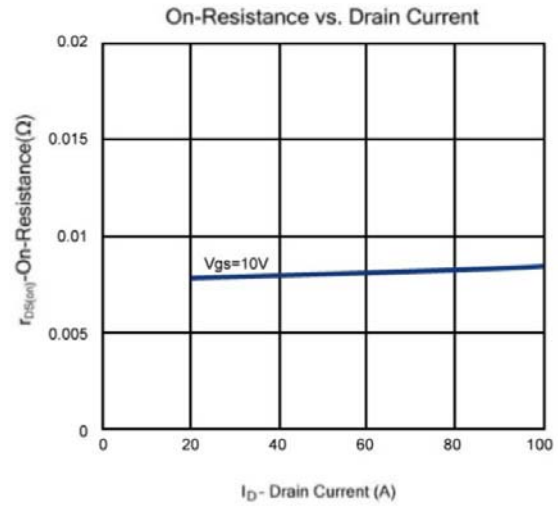
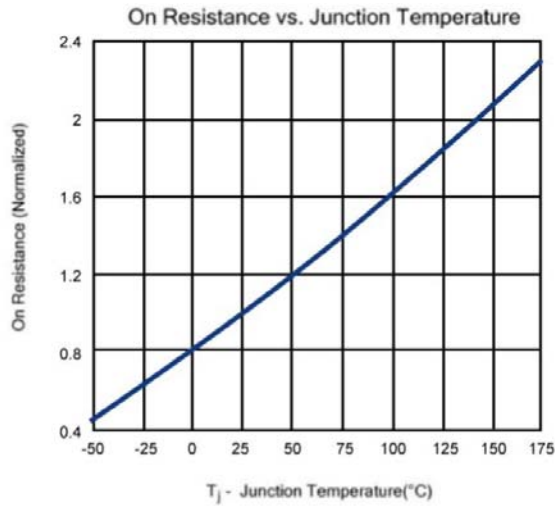
Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	75			V	I _D =250μA, V _{GS} =0V
I _{DSS}	Zero Gate Voltage Drain Current			1	μA	V _{DS} =75V, V _{GS} =0V
				10	μA	V _{DS} =75V, V _{GS} =0V, T _j =125°C
I _{GSS}	Gate – Body Leakage			±100	nA	V _{GS} = ±20V , V _{DS} =0V
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	2.0		4.0	V	V _{DS} = V _{GS} , I _D =250μA
R _{DS(on)}	Static Drain-Source On-Resistance			11	mΩ	V _{GS} =10V, I _D =40A (Note 3)
Dynamic Characteristics and Switching Characteristics						
Ciss	Input Capacitance		6200		pF	V _{DS} = 20 V, V _{GS} = 0V, f = 1.0 MHz
Coss	Output Capacitance		437		pF	
Crss	Reverse Transfer Capacitance		144		pF	
t _{d(on)}	Turn - On Delay Time		60		nS	V _{DS} = 30V, V _{GS} = 10 V, R _L =15 Ω ,R _G = 10 Ω (Note 3)
t _r	Rise Time		43		nS	
t _{d(off)}	Turn - Off Delay Time		159		nS	
t _f	Fall Time		47		nS	
Qg	Total Gate Charge		27		nC	V _{DS} =60V, I _D =75A, V _{GS} = 4.5 V (Note 3)
Qgs	Gate–Source Charge		36		nC	
Qgd	Gate–Drain Charge		50		nC	
Rg	Gate Resistance		0.8		Ω	f=1MHz
Drain-Source Diode Characteristics and Maximun Ratings						
I _S	Continuous Source–Drain Diode Forward Current			80	A	
I _{SM}	Pulsed Drain-Source Diode Forward Current			300	A	
V _{SD}	Source–Drain Diode Forward On–Voltage			1.5	V	I _S =40A, V _{GS} =0(Note 3)

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. I_D=30A, V_{DD}=37.5V, Starting T_J=25°C
3. Pulse Test: Pulse width≤300μS, Duty Cycle≤2%

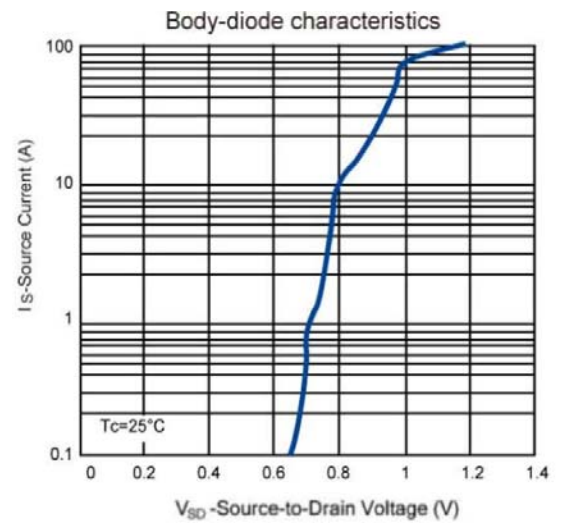
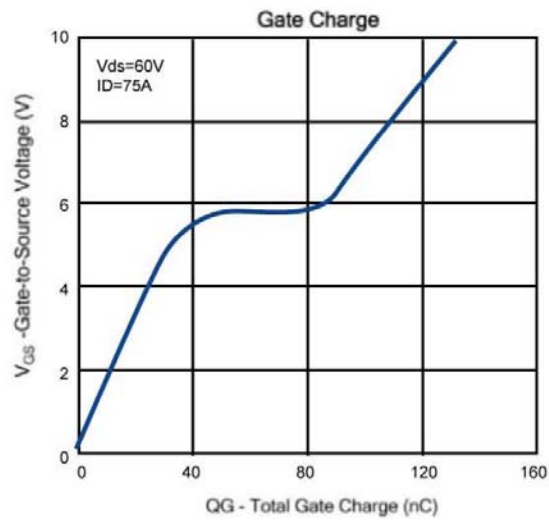


Typical Characteristics





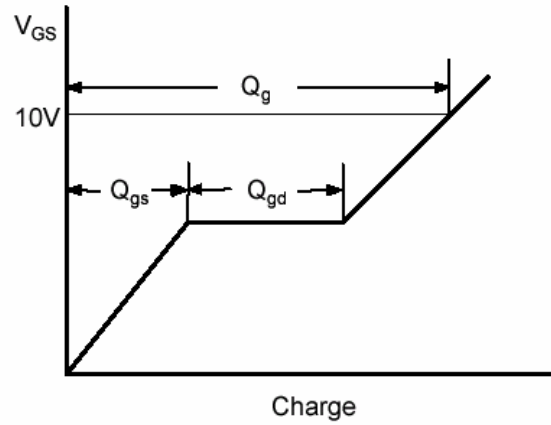
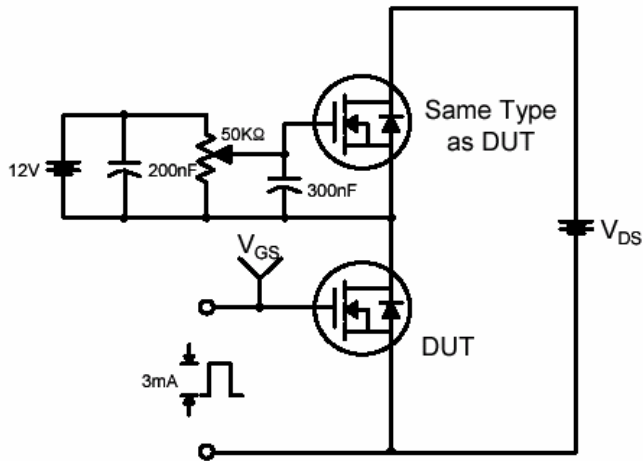
Typical Characteristics



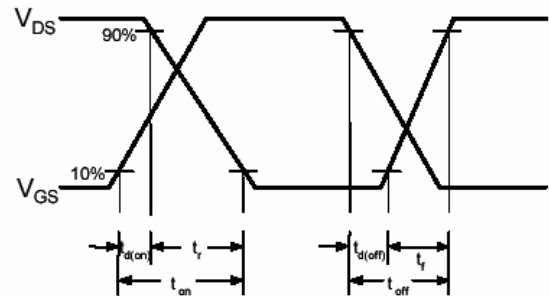
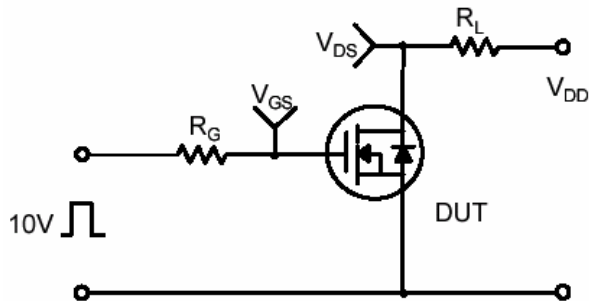


Typical Characteristics

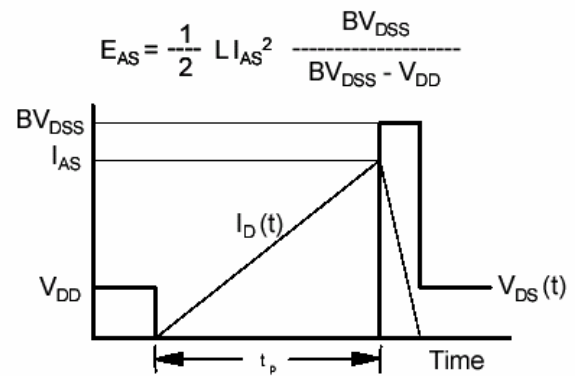
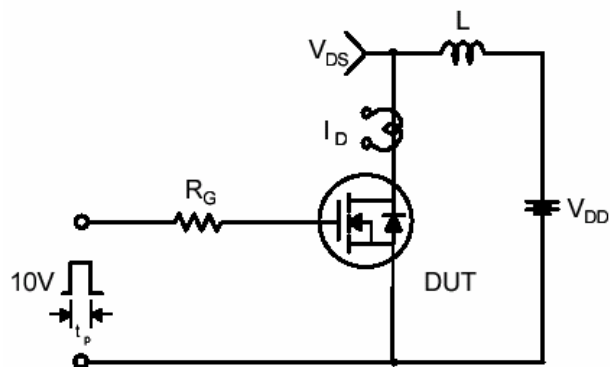
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms





HFP80N75

■ Typical Characteristics

Peak Diode Recovery dv/dt Test Circuit & Waveforms

