



N-Channel Enhancement Mode Field Effect Transistor

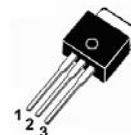
■ Applications

- Portable Equipment.
- LCD Display Inverter.
- DC/DC converters
- Other switching applications.

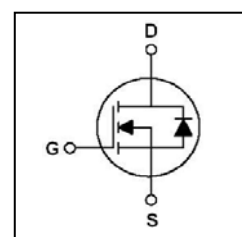
■ Features

- 50A, 30V(See Note), $R_{DS(on)} < 6.6mV\Omega @ V_{GS} = 10V$
- Fast switching
- 100% avalanche tested
- Minimize input capacitance and gate charge
- Equivalent Type:ME70N03

TO-251



1- G 2-D 3-S



■ Maximum Ratings (Ta=25°C unless otherwise specified)

T_{stg}	Storage Temperature	-----	-55~150°C
T_j	Operating Junction Temperature	-----	150°C
V_{DSS}	Drain-Source Voltage	-----	30V
V_{GSS}	Gate-Source Voltage	-----	±20V
I_D	Drain Current (Continuous)($T_c=25^\circ C$)	-----	50A
I_{DM}	Pulsed Drain Current (Note 1)	-----	100A
P_D	Maximum Power Dissipation ($T_c=25^\circ C$)	-----	40W
E_{AS}	Pulsed Avalanche Energy($L=0.5mH$, $R_g=25\Omega$)	-----	115mJ
$R_{thj-case}$	Thermal Resistance Junction-case	-----	20°C/W

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

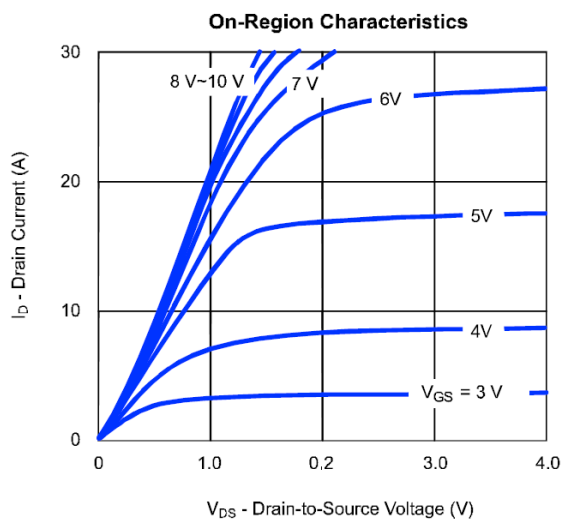
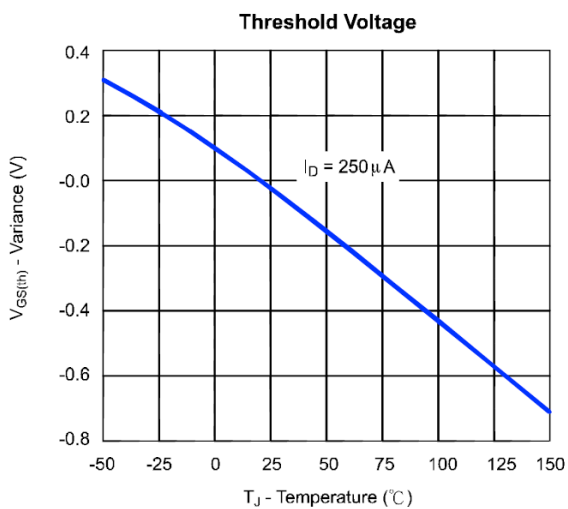
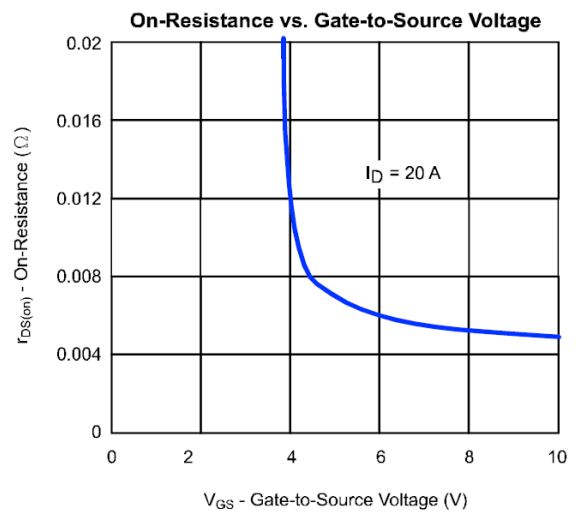
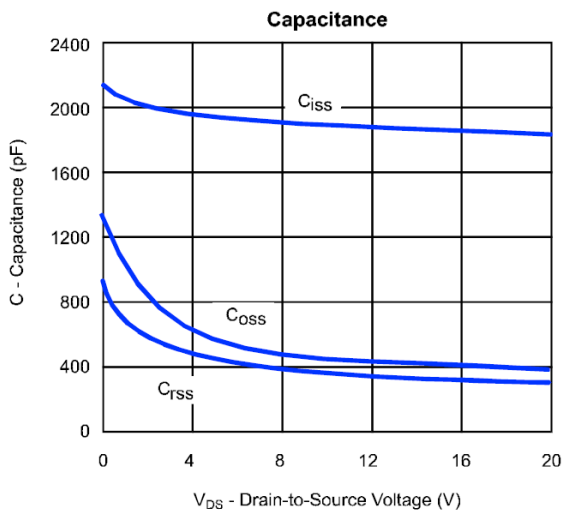
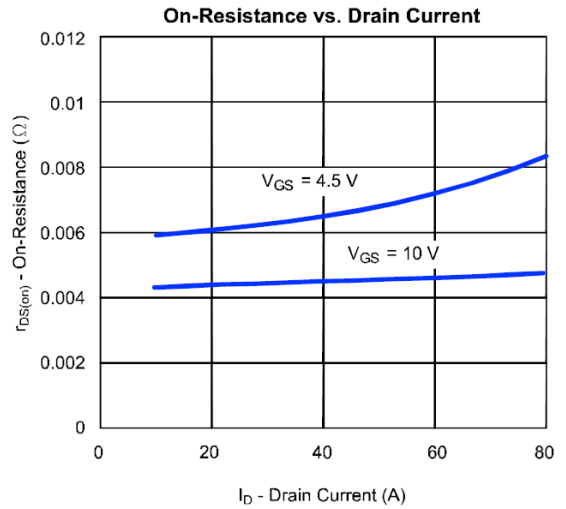
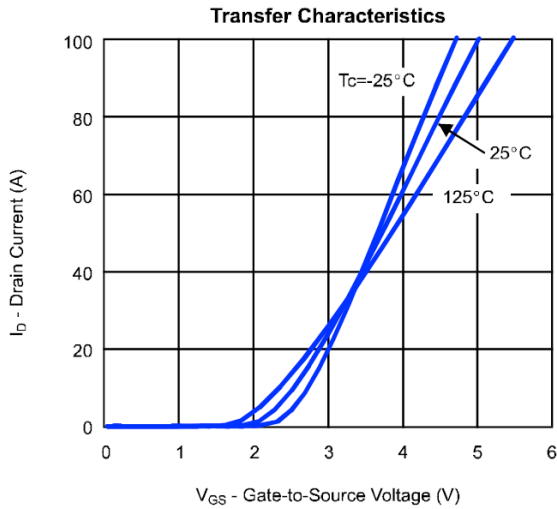
Symbol	Items	Min.	Typ.	Max.	Unit	Conditions
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	30			V	I _D =250μA ,V _{GS} =0V
I _{DSS}	Zero Gate Voltage Drain Current			1	μA	V _{DS} =30V, V _{GS} =0V
I _{GSS}	Gate – Body Leakage			±100	nA	V _{GS} = ±20V , V _{DS} =0V
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	1.0		3.0	V	V _{DS} = V _{GS} , I _D =250μA
R _{DS(on)}	Static Drain-Source On-Resistance		5.5	6.6	mΩ	V _{GS} =10V, I _D =30A (Note 2)
			8.5	11	mΩ	V _{GS} =4.5V, I _D =15A (Note 2)
Dynamic Characteristics and Switching Characteristics						
C _{iss}	Input Capacitance		1640		pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.0 MHz
C _{oss}	Output Capacitance		260		pF	
C _{rss}	Reverse Transfer Capacitance		84		pF	
t _{d(on)}	Turn - On Delay Time		19		nS	V _{DS} = 15V, V _{GS} = 10 V, R _L =15 Ω ,R _G = 3 Ω (Note 2)
t _r	Rise Time		15		nS	
t _{d(off)}	Turn - Off Delay Time		54		nS	
t _f	Fall Time		6.5		nS	
Q _g	Total Gate Charge		8.7		nC	V _{DS} =15V, I _D =25A, V _{GS} = 4.5V (Note 2)
Q _{gs}	Gate–Source Charge		4.4		nC	
Q _{gd}	Gate–Drain Charge		3.6		nC	
R _g	Gate Resistance		0.9		Ω	f=1MHz
Drain-Source Diode Characteristics and Maximun Ratings						
I _S	Continuous Source–Drain Diode Forward Current			20	A	
I _{SM}	Pulsed Drain-Source Diode Forward Current			40	A	
V _{SD}	Source–Drain Diode Forward On–Voltage		0.85	1.2	V	I _S =20A,V _{GS} =0(Note 2)

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Pulse Test: Pulse width≤300μS, Duty Cycle≤2%

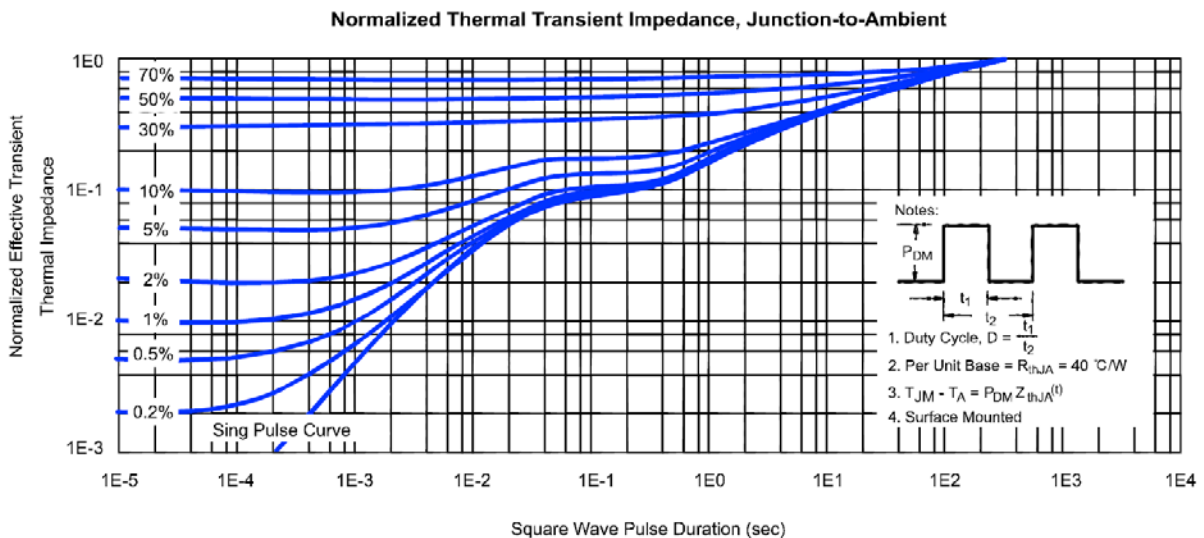
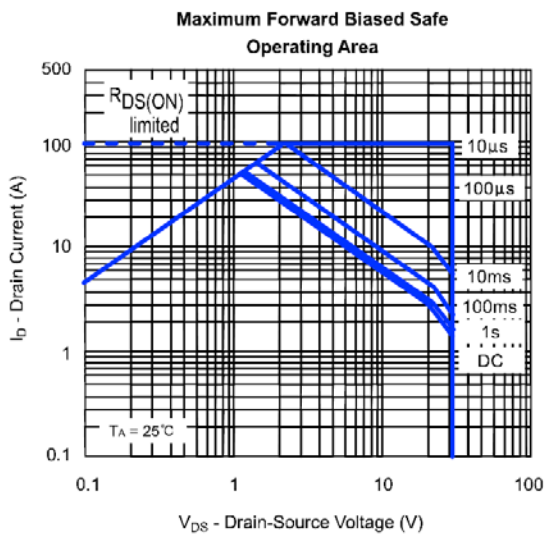
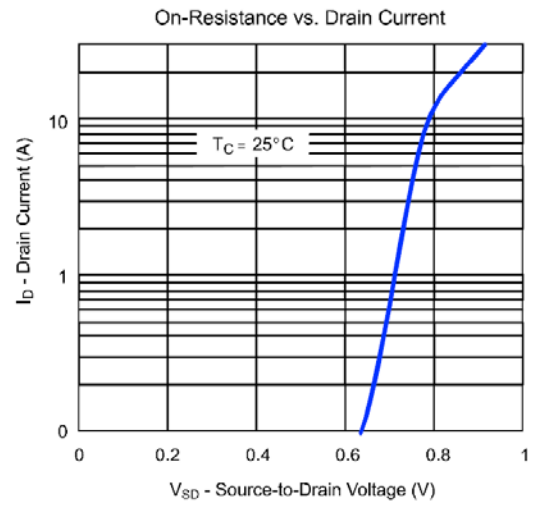
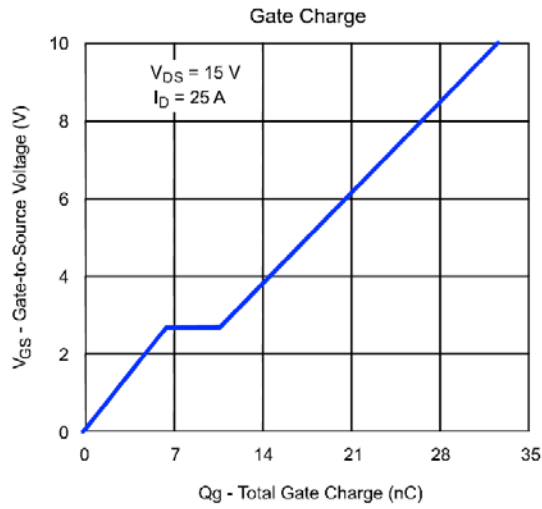


Typical Characteristics





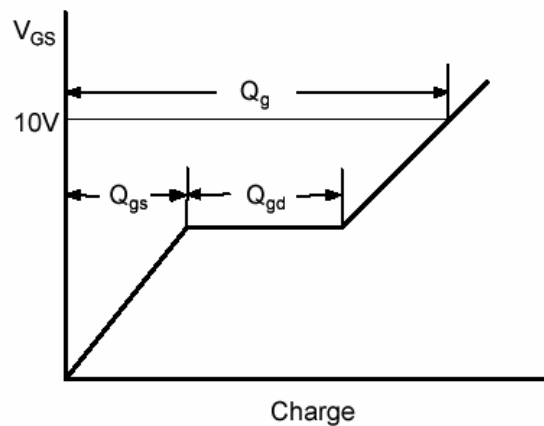
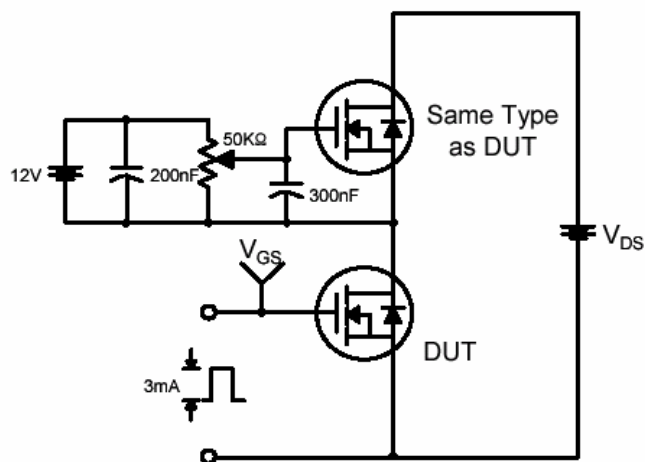
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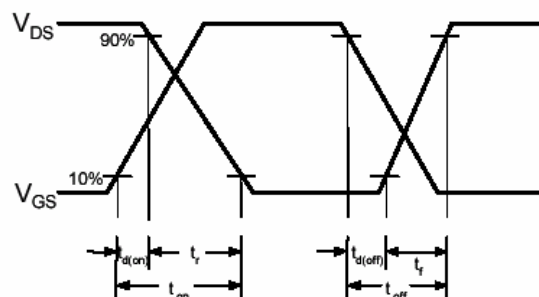
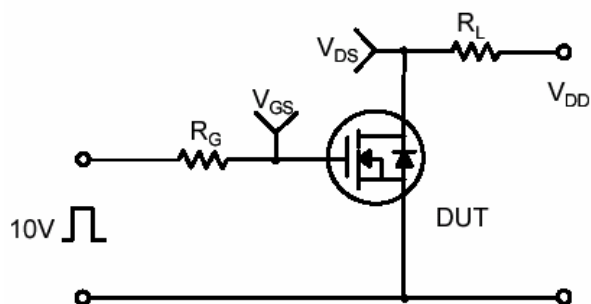


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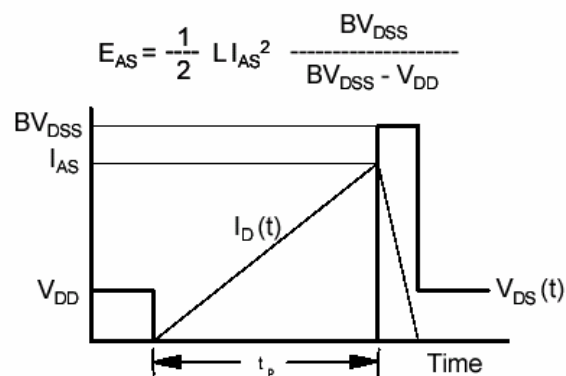
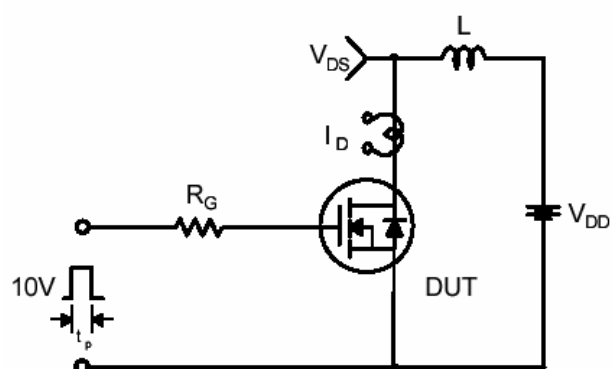
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms





Typical Characteristics

Peak Diode Recovery dv/dt Test Circuit & Waveforms

