

N-Channel Enhancement Mode MOSFET

$V_{DS}=80V$

$R_{DS(ON)}, V_{GS}@10V, I_{DS}@40A = 6m\Omega$

FEATURES

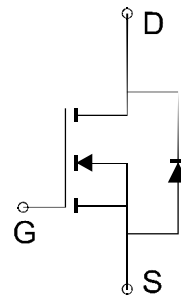
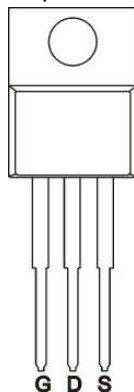
Minimize input capacitance and gate charge

Specially designed for DC/DC converters and DC motor control

PIN CONFIGURATION

(TO-220)

Top View



Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	80	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	75
		$T_C=100^\circ C$	70
Pulsed Drain Current ^a	I_{DM}	230	A
Source-drain Current	I_{SD}	75	A
Power Dissipation	P_D	$T_C=25^\circ C$	250
		$T_C=100^\circ C$	125
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175	°C
Avalanche Energy with Single Pulse ^b	E_{AS}	450	mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	0.5	°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted)	$R_{\theta JA}$	62.5	

a. Pulse width limited by safe operating area

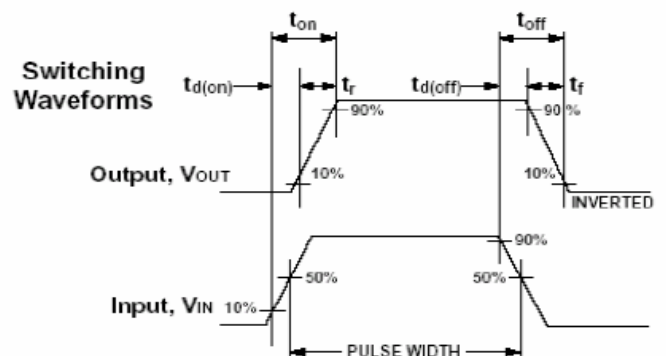
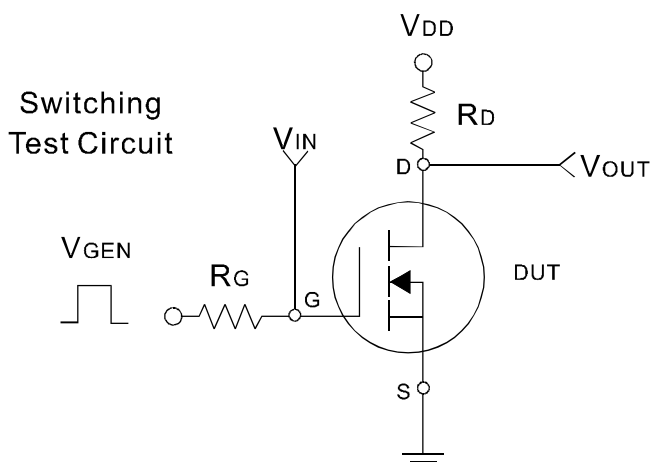
b. Starting $T_J=25^\circ C, I_D=30A, V_{DD}=37.5V$

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Electrical Characteristics

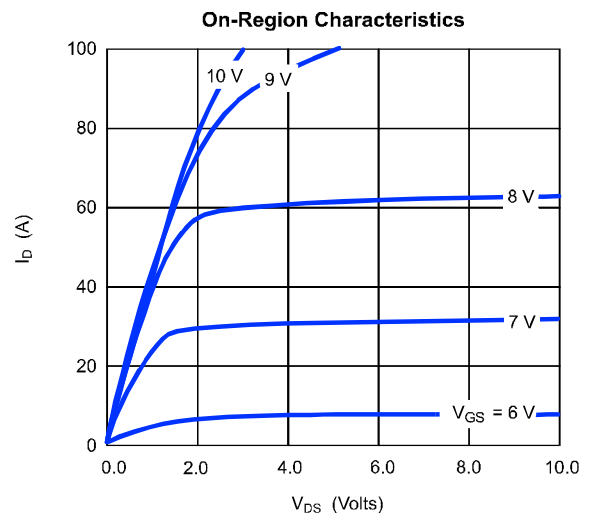
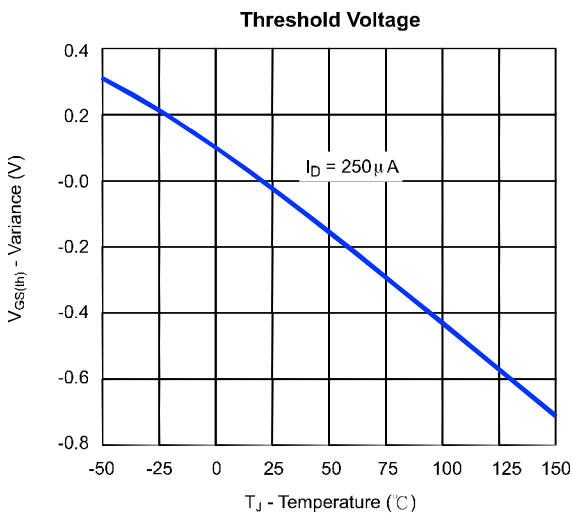
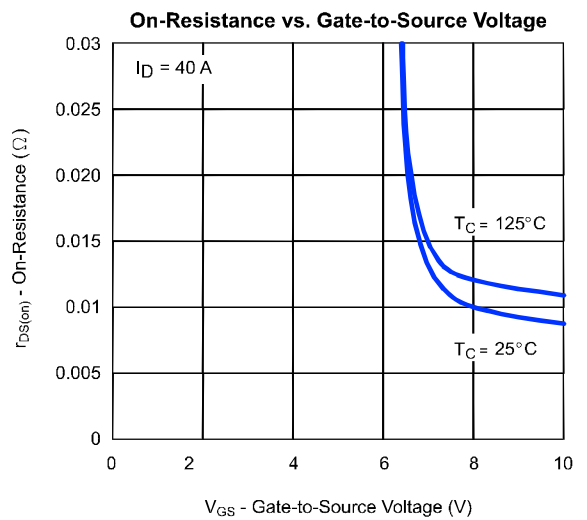
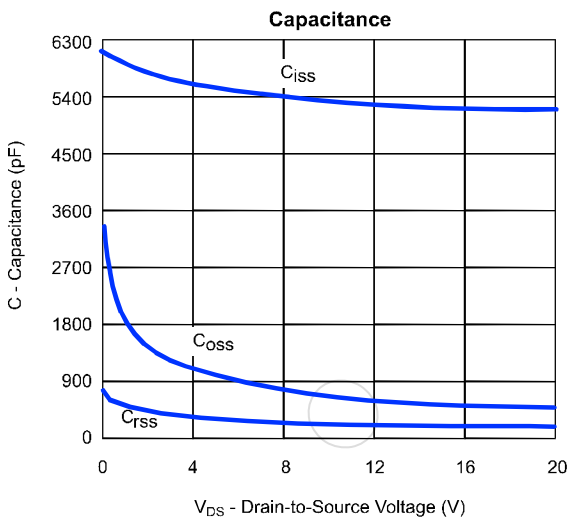
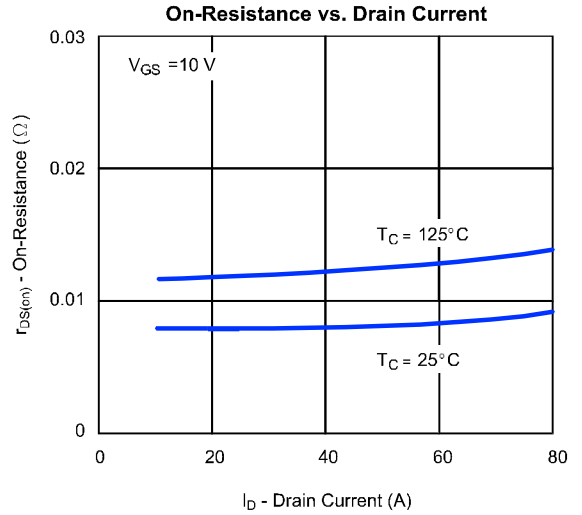
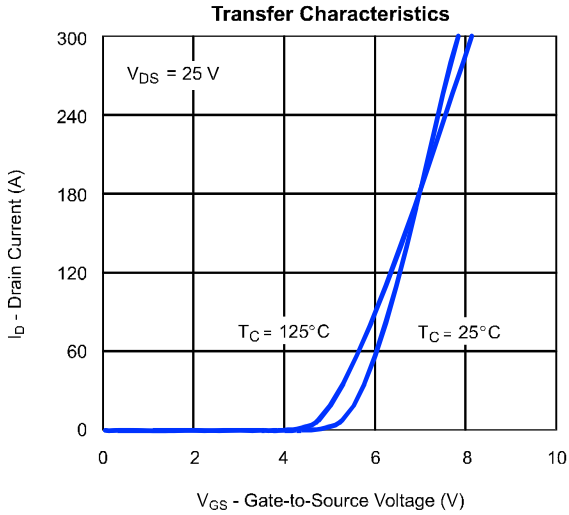
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	80			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	2	3	3.5	V
I _{GSS}	Gate-Body Leakage	V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =Max Rating, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance*	V _{GS} =10V, I _D =40A		4.5	6	mΩ
G _{FS}	Forward Transconductance*	V _{DS} =15V, I _D =40A		20	S	
V _{SD}	Diode Forward Voltage *	I _{SD} =25A, V _{GS} =0V			1.5	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =60V, V _{GS} =10V, I _D =75A		80	160	nC
Q _{gs}	Gate-Source Charge			40		
Q _{gd}	Gate-Drain Charge			35		
R _g	Gate Resistance	f=1MHz		2.5		Ω
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz		4800	7500	pF
C _{oss}	Output Capacitance			400		
C _{rss}	Reverse Transfer Capacitance			110		
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, I _D =45A V _{DD} =37.5V, R _G =4.7 Ω		40	48	ns
t _r	Turn-On Rise Time			18	22	
t _{d(off)}	Turn-Off Delay Time			100	120	
t _f	Turn-Off Fall Time			17	21	

Note: Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%



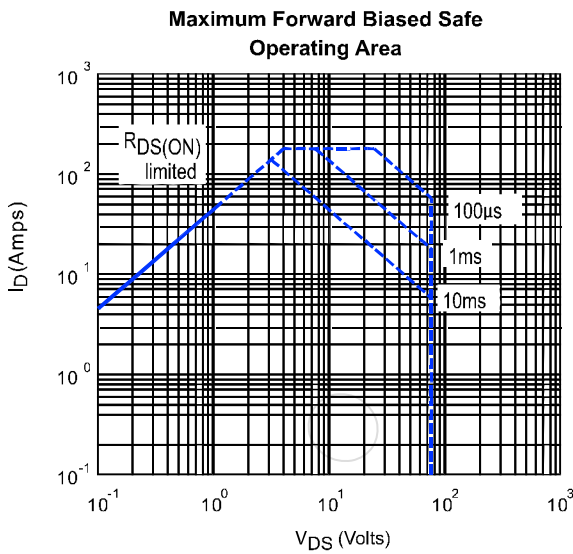
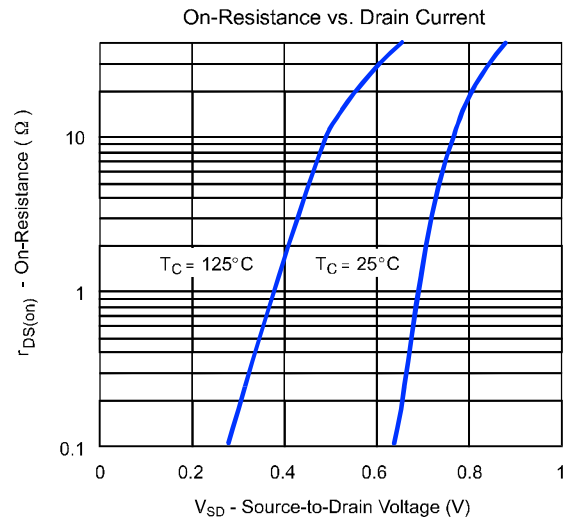
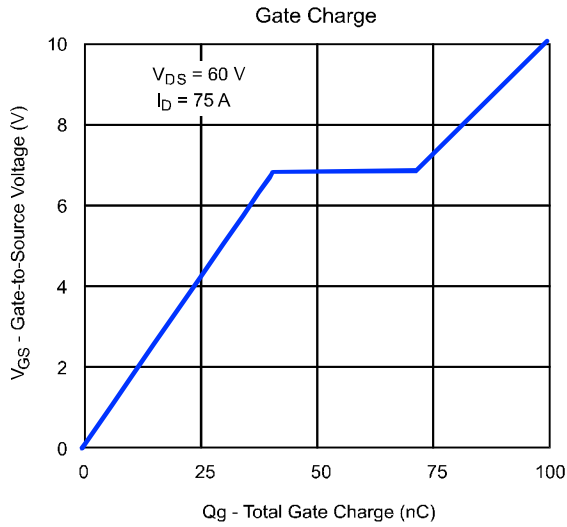
N-Channel Enhancement Mode MOSFET

Typical Characteristics (T_J = 25°C Noted)

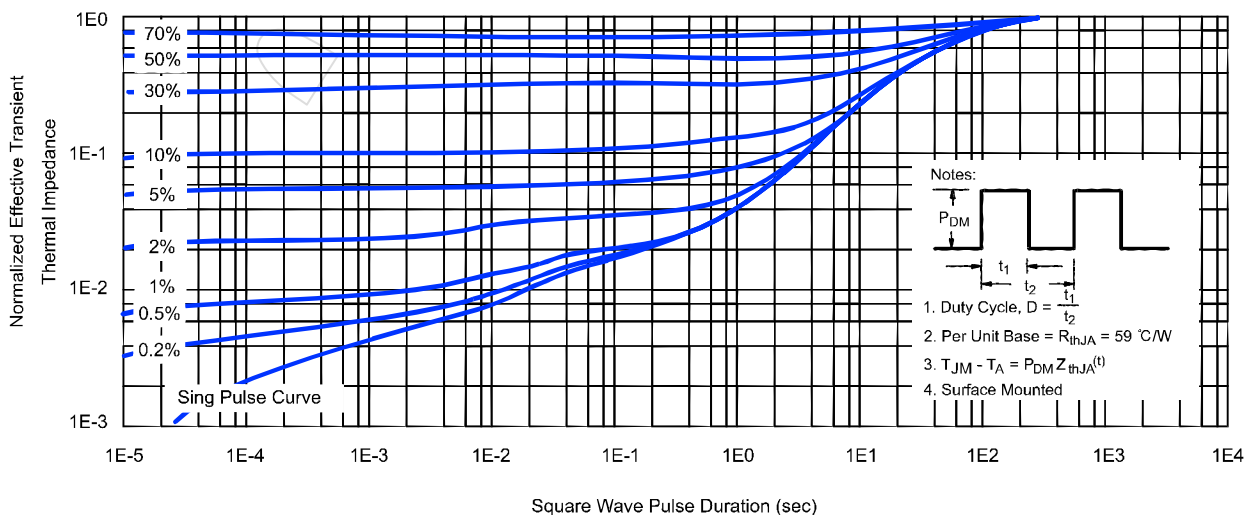


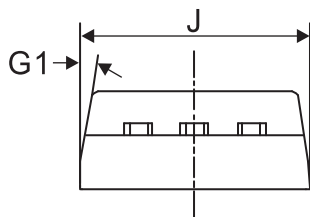
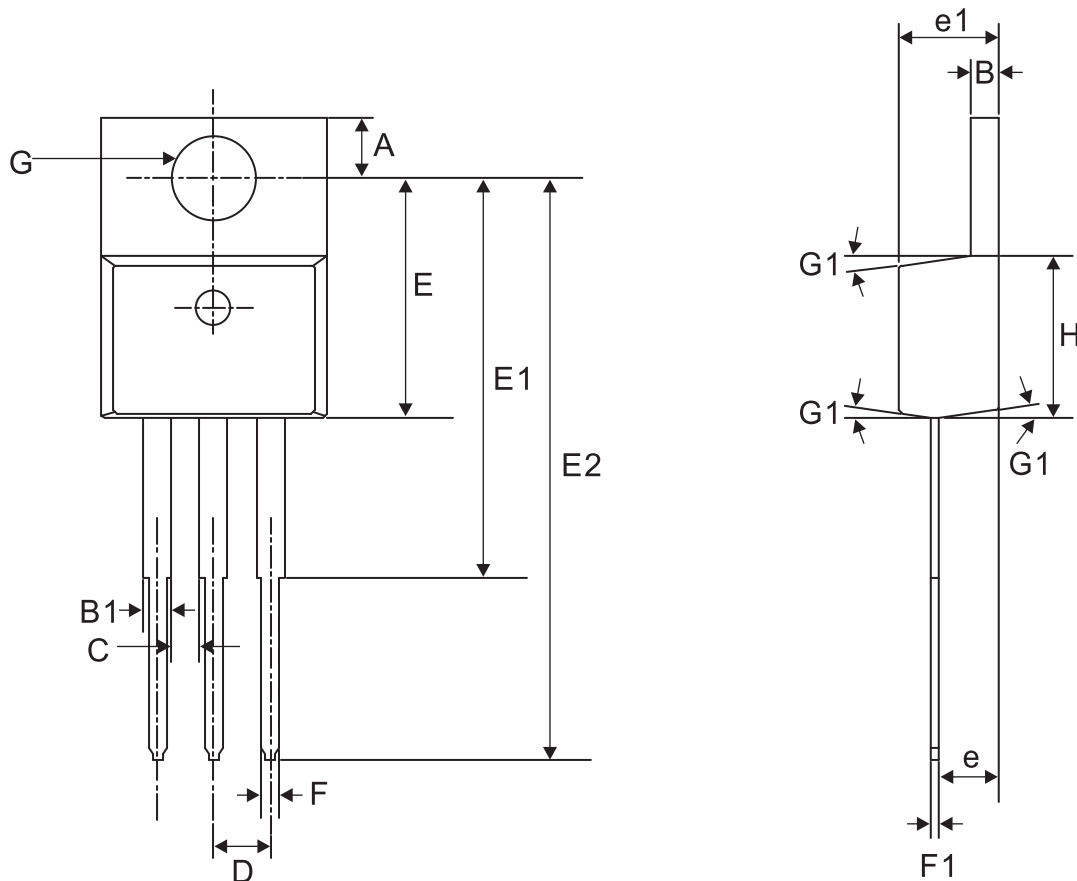
N-Channel Enhancement Mode MOSFET

Typical Characteristics (T_J = 25°C Noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient



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TO-220 Package Outline


SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.103	0.113	0.004	0.004
B	0.045	0.055	0.002	0.002
B1	0.050		0.002	
C	0.047	0.053	0.002	0.002
D	0.100		0.004	
E	0.461	0.481	0.182	0.019
E1	0.700	0.720	0.028	0.028
E2	1.020	1.040	0.402	0.041
F	0.029	0.035	0.001	0.001
F1	0.012	0.018	0.0004	0.001
G	ϕ 0.151			
G1	10		0.394	
H	0.323	0.333	0.013	0.013