Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2006/06/06
REVISED DATE :

GE75N07

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	75V
$R_{DS(ON)}$	11mΩ
I_D	80A

Description

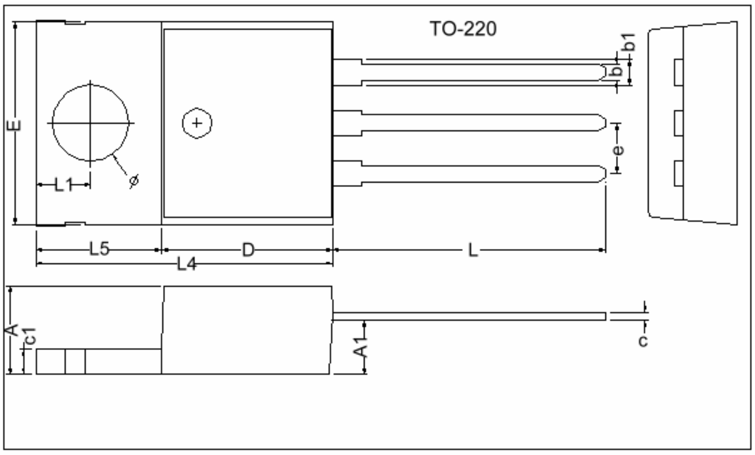
The GE75N07 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

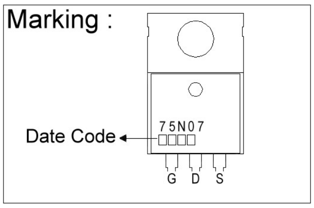
The through-hole version (TO-220) is available for low-profile applications and suited for low voltage applications such as DC/DC converters.

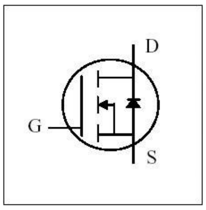
Features

*Low Gate Charge
*Simple Drive Requirement
*Fast Switching Characteristics
*RoHS Compliant

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.00	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	e	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	Ø	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	75	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS}@10V	I_D @Tc=25℃	80	A
Continuous Drain Current, V_{GS}@10V	I_D @Tc=100℃	56	A
Pulsed Drain Current[1]	I_{DM}	300	A
Total Power Dissipation	P_D @Tc=25℃	156	W
Linear Derating Factor		0.125	W/℃
Single Pulse Avalanche Energy[3]	E_{AS}	450	mJ
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

Thermal Data

Parameter		Symbol	Value	Unit
Thermal Resistance Junction-case	Max.	Rthj-case	0.8	℃/W
Thermal Resistance Junction-ambient	Max.	Rthj-amb	62	℃/W

Electrical Characteristics (Tj = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	75	-	-	V	V_{GS}=0, I_D=1mA
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}/\triangle Tj$	-	0.08	-	V/℃	Reference to 25℃, I_D=1mA
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance	g_{fs}	-	40	-	S	V_{DS}=10V, I_D=40A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	10	uA	V_{DS}=60, V_{GS}=0
Drain-Source Leakage Current(Tj=150℃)		-	-	100	uA	V_{DS}=75V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	11	mΩ	V_{GS}=10V, I_D=40A
Total Gate Charge[2]	Q_g	-	83	130	nC	I_D=40A V_{DS}=60V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	10	-		
Gate-Drain ("Miller") Change	Q_{gd}	-	51	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	15	-	ns	V_{DS}=40V I_D=30A V_{GS}=10V R_G=10Ω R_D=1.33Ω
Rise Time	T_r	-	73	-		
Turn-off Delay Time	$T_{d(off)}$	-	340	-		
Fall Time	T_f	-	200	-		
Input Capacitance	C_{iss}	-	4270	6830	pF	V_{GS}=0V V_{DS}=25V f=1.0MHz
Output Capacitance	C_{oss}	-	690	-		
Reverse Transfer Capacitance	C_{rss}	-	320	-		
Gate Resistance	R_g	-	1.8	2.7	Ω	f=1.0MHz

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	1.5	V	I_S=40A, V_{GS}=0V, Tj=25℃
Reverse Recovery Time	T_{rr}	-	90	-	ns	I_S=40A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	235	-	nC	

Notes: 1. Pulse width limited by safe operating area.

2. Pulse width≦300us, duty cycle≦2%.

3. Starting Tj=25℃, V_{DD}=50V, L=1mH, R_G=25Ω, I_{AS}=30A.

Characteristics Curve

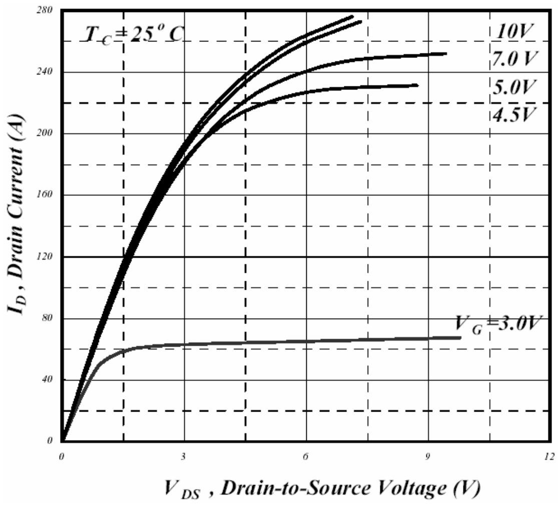


Fig 1. Typical Output Characteristics

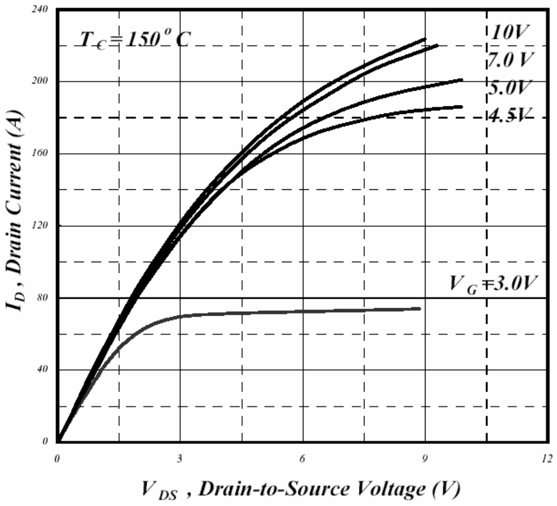


Fig 2. Typical Output Characteristics

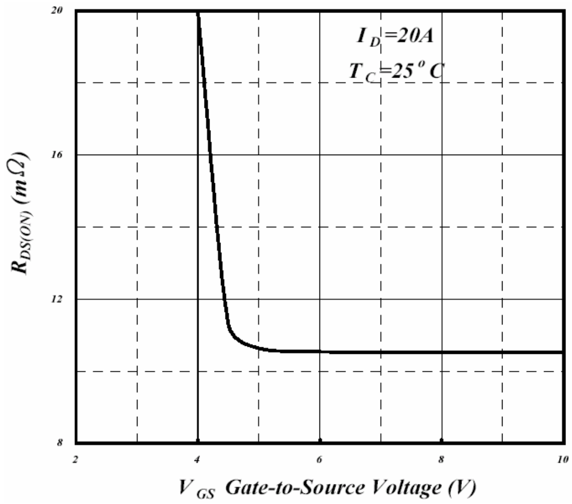


Fig 3. On-Resistance v.s. Gate Voltage

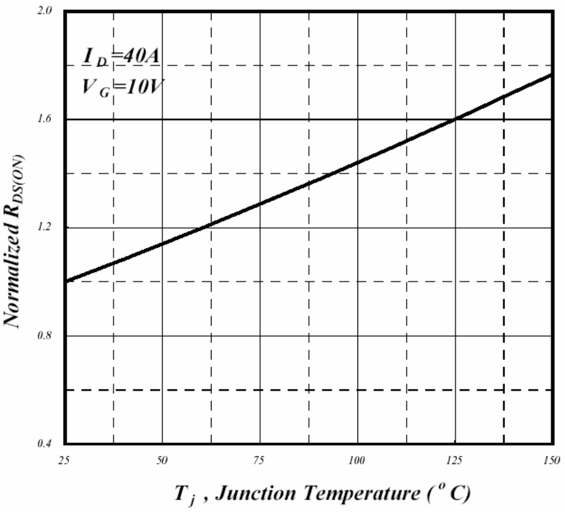


Fig 4. Normalized On-Resistance
v.s. Junction Temperature

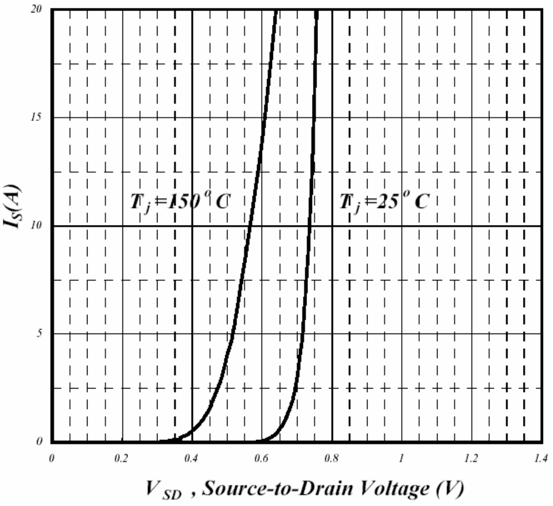


Fig 5. Forward Characteristics of
Reverse Diode

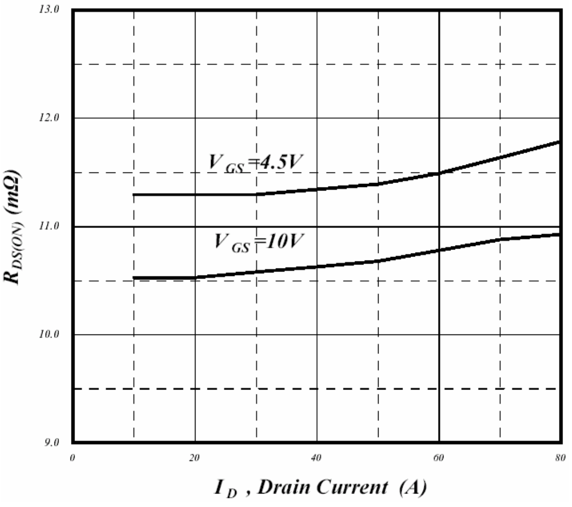


Fig 6. On-Resistance
v.s. Drain Current

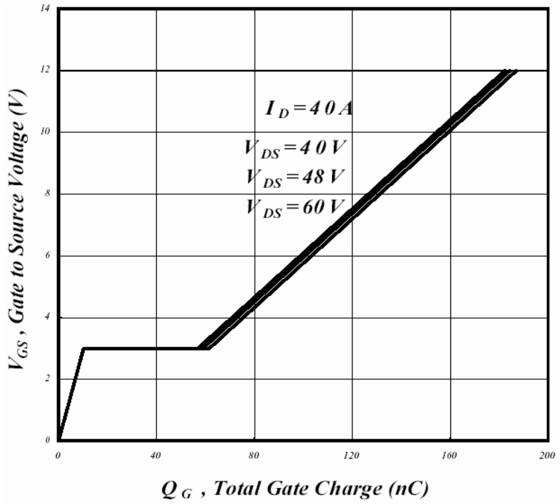


Fig 7. Gate Charge Characteristics

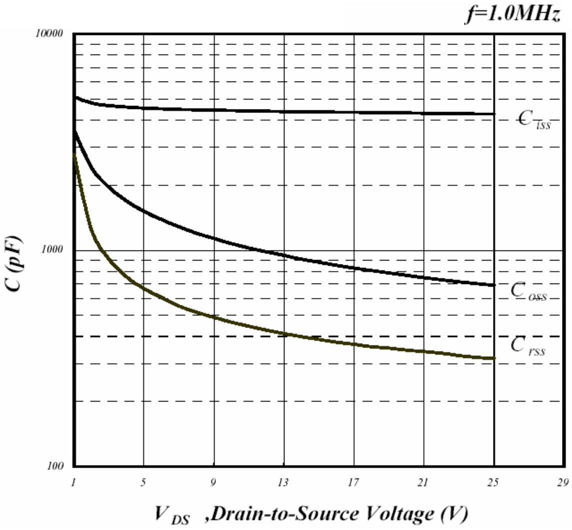


Fig 8. Typical Capacitance Characteristics

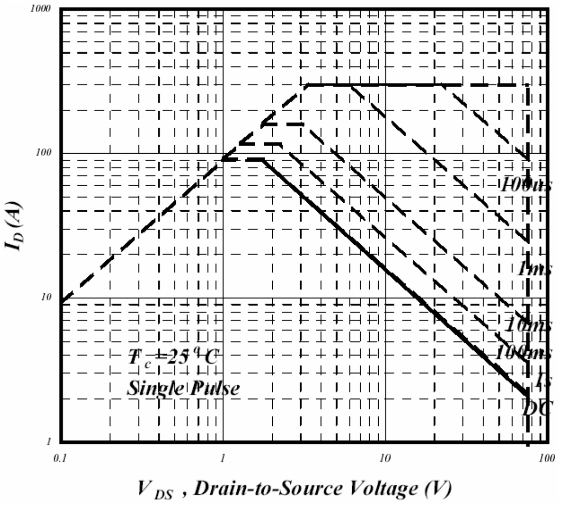


Fig 9. Maximum Safe Operating Area

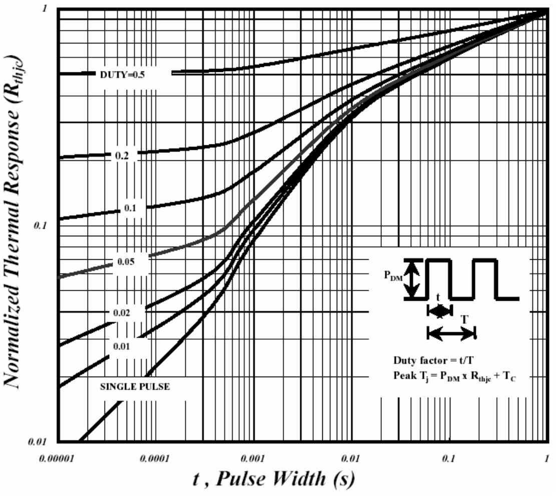


Fig 10. Effective Transient Thermal Impedance

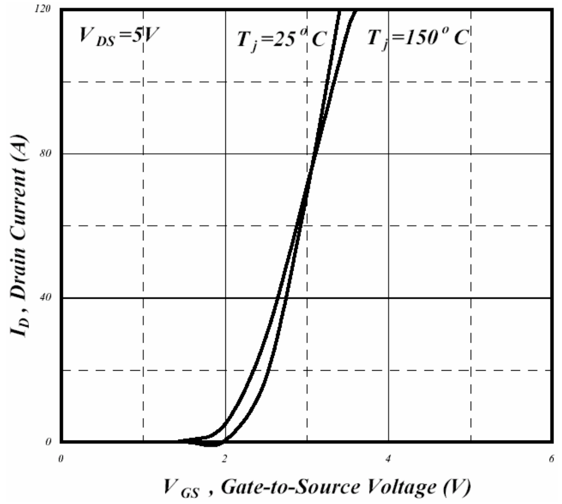


Fig 11. Transfer Characteristics

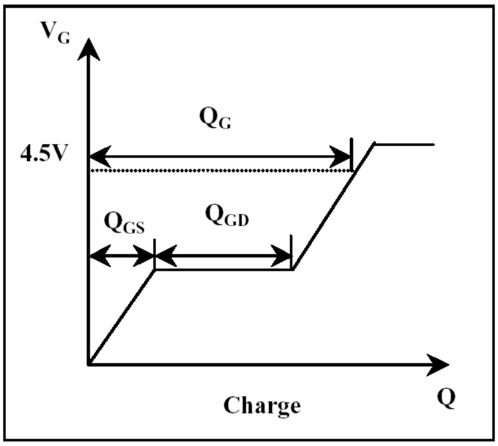


Fig 12. Gate Charge Waveform

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