Pb Free Plating Product

GTM CORPORATION

ISSUED DATE :2006/09/05
REVISED DATE :

GE75NF75

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

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

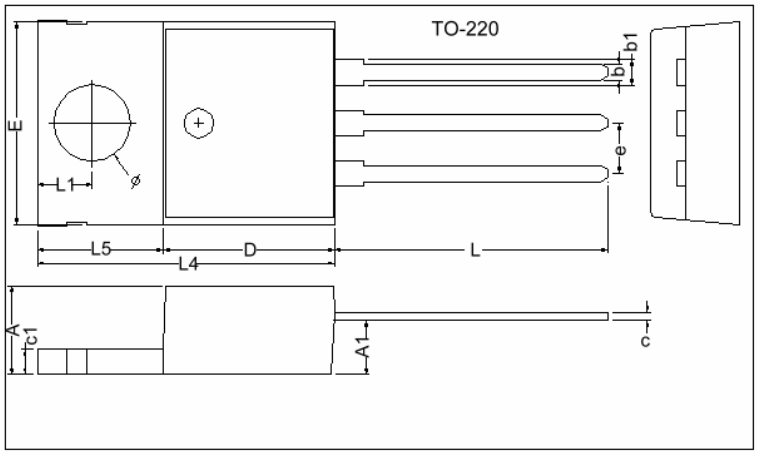
Description

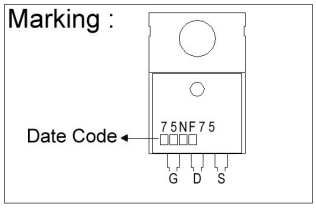
The GE75NF75 uses advanced trench technology to provide excellent on-resistance extremely efficient and cost-effectiveness device.
The through-hole version (TO-220) is available for low-profile applications and suited for low voltage applications such as DC/DC converters.

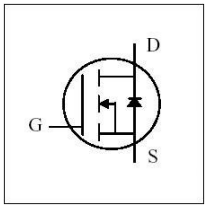
Features

*High Density Cell Design for Ultra Low On-Resistance
*High power and Current handing capability

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}	±25	V
Continuous Drain Current	I_D @Tc=25℃	80	A
Continuous Drain Current	I_D @Tc=100℃	56	A
Pulsed Drain Current[1]	I_{DM}	200	A
Total Power Dissipation	P_D @Tc=25℃	268	W
Linear Derating Factor		1.78	W/℃
Single Pulse Avalanche Energy[2]	E_{AS}	350	mJ
Single Pulse Avalanche Current	I_{AS}	38	A
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +175	℃

Thermal Data

Parameter		Symbol	Value	Unit
Thermal Resistance Junction-case	Max.	Rthj-case	0.56	℃/W
Thermal Resistance Junction-ambient	Max.	Rthj-amb	60	℃/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=250uA
Gate Threshold Voltage	$V_{GS(th)}$	2.0	-	4.0	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance	g_{fs}	-	34	-	S	V_{DS}=15V, I_D=40A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±25V
Drain-Source Leakage Current(Tj=25℃)	I_{DSS}	-	-	1	uA	V_{DS}=75, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	5	uA	V_{DS}=60V, V_{GS}=0
Static Drain-Source On-Resistance[3]	$R_{DS(ON)}$	-	-	11	mΩ	V_{GS}=10V, I_D=37.5A
Total Gate Charge[3]	Q_g	-	114	-	nC	I_D=30A V_{DS}=30V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	33	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	18	-		
Turn-on Delay Time[3]	$T_{d(on)}$	-	21	-	ns	V_{DS}=30V V_{GS}=10V R_G=3Ω R_L=1Ω
Rise Time	T_r	-	39	-		
Turn-off Delay Time	$T_{d(off)}$	-	70	-		
Fall Time	T_f	-	24	-		
Input Capacitance	C_{iss}	-	7000	-	pF	V_{GS}=0V V_{DS}=30V f=1.0MHz
Output Capacitance	C_{oss}	-	400	-		
Reverse Transfer Capacitance	C_{rss}	-	87	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[3]	V_{SD}	-	-	1.5	V	I_S=75A, V_{GS}=0V, Tj=25℃
Reverse Recovery Time[3]	T_{rr}	-	53	-	ns	I_S=30A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	143	-	nC	
Continuous Source Current (Body Diode)	I_S	-	-	80	A	V_D= V_G=0V, V_S=1.5V

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

2. Starting Tj=25℃, V_{DD}=20V, L=0.1mH, R_G=25Ω, I_{AS}=20A.

3. Pulse width≦300us, duty cycle≦2%.

Characteristics Curve

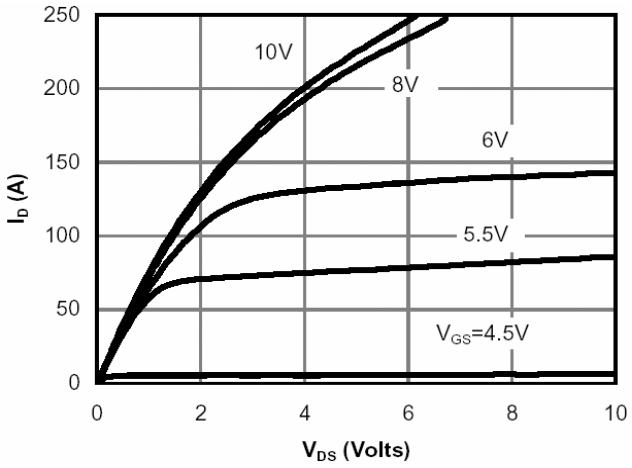


Fig 1. Typical Output Characteristics

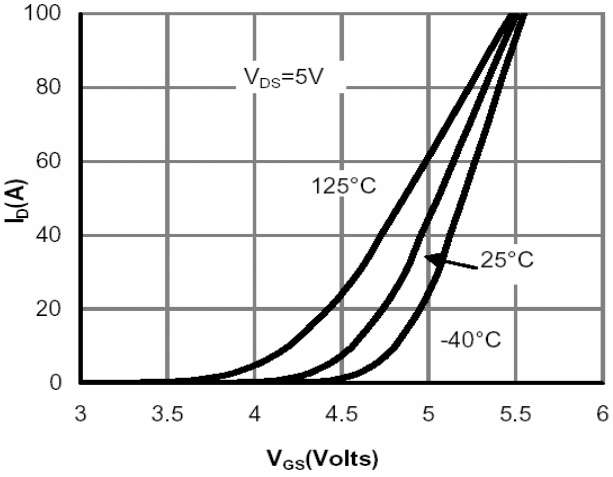


Fig 2. Transfer Characteristics

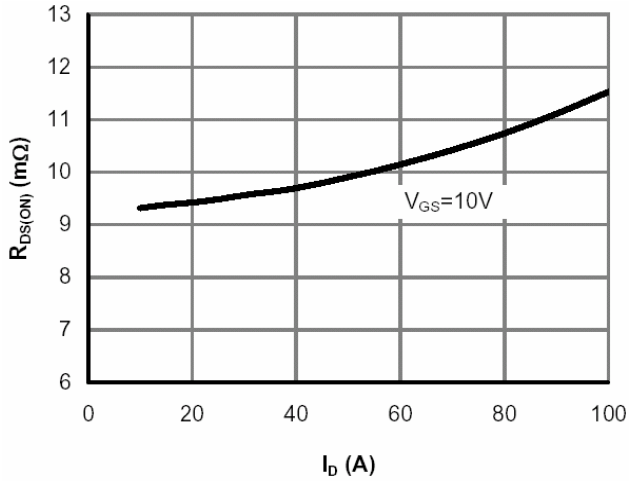


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

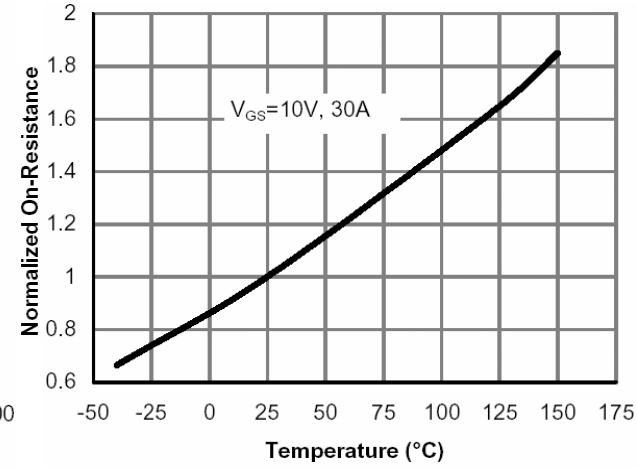


Fig 4. On-Resistance v.s. Junction Temperature

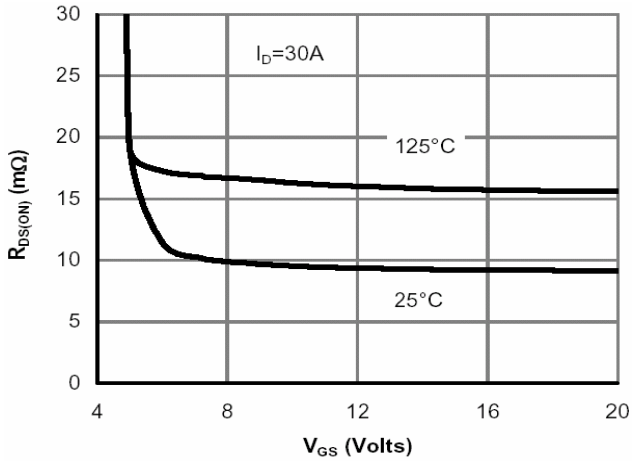


Fig 5. On-Resistance v.s. Gate-Source Voltage

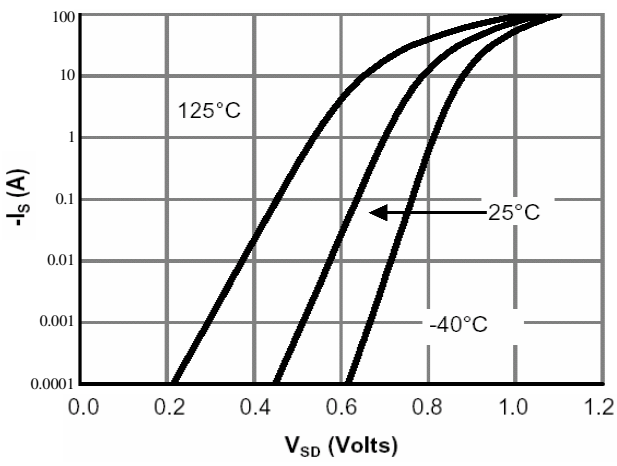


Fig 6. Body Diode Characteristics

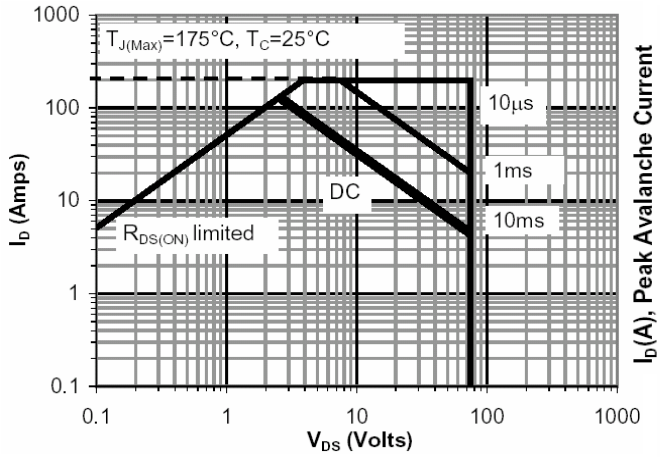


Fig 7. Maximum Safe Operating Area

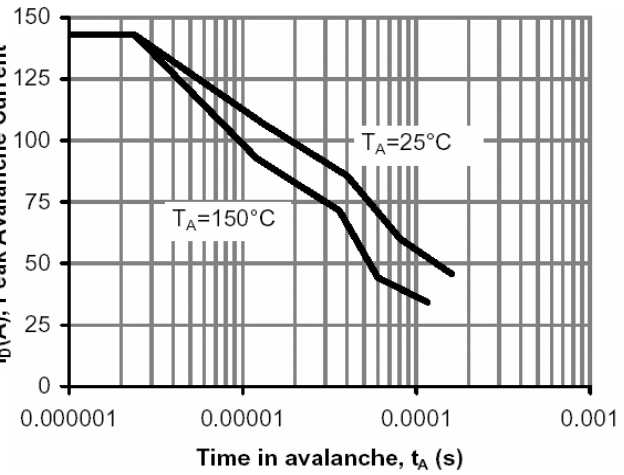


Fig 8. Single Pulse Avalanche Capability

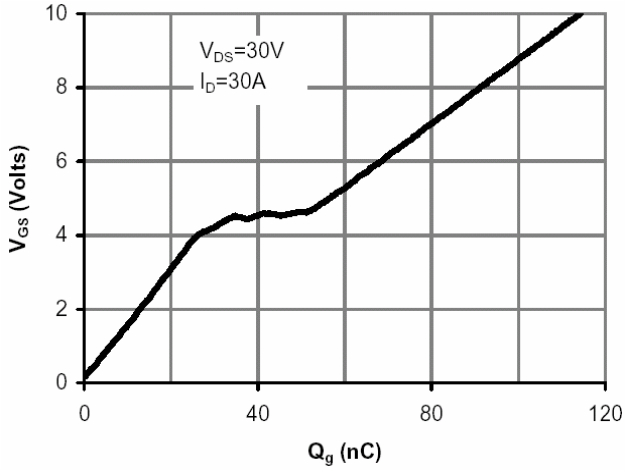


Fig 9. Gate Charge Characteristics

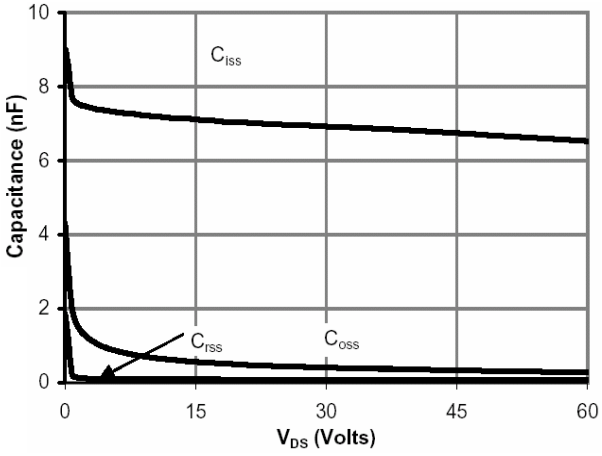


Fig 10. Typical Capacitance Characteristics

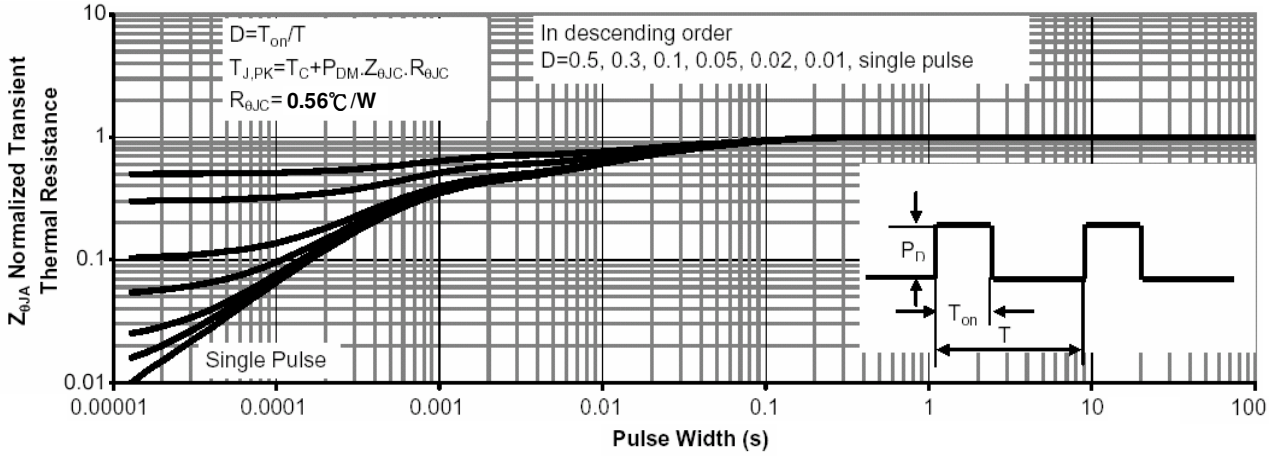


Fig 11. Normalized Maximum Transient Thermal Impedance

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