

GE75NF75

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	75V
RDS(ON)	11mΩ
ID	80A

Description

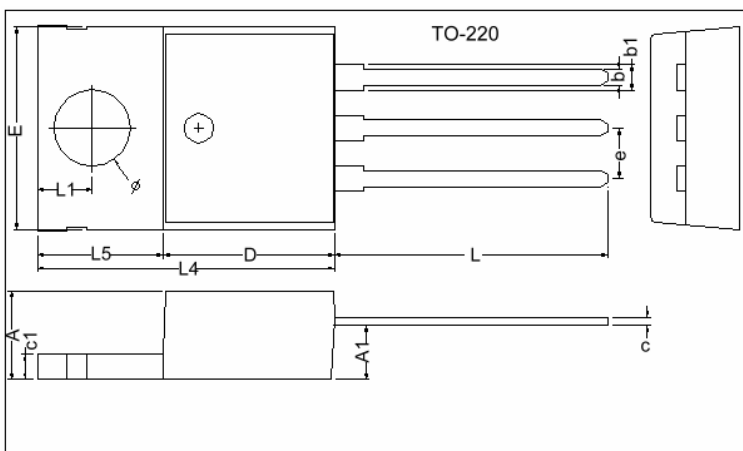
The GE75NF75 uses advanced trench technology to provide excellent on-resistance extremely efficient and cost-effectiveness device.

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

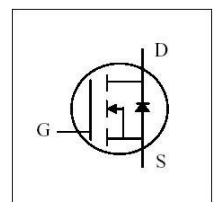
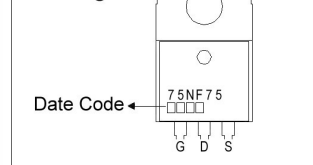
Features

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

Package Dimensions



Marking :



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	$I_D @ T_C=25^{\circ}C$	80	A
Continuous Drain Current	$I_D @ T_C=100^{\circ}C$	56	A
Pulsed Drain Current ¹	I_{DM}	200	A
Total Power Dissipation	$P_D @ T_C=25^{\circ}C$	268	W
Linear Derating Factor		1.78	W/°C
Single Pulse Avalanche Energy ²	E_{AS}	350	mJ
Single Pulse Avalanche Current	I_{AS}	38	A
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~ +175	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case Max.	Rthj-case	0.56	°C/W
Thermal Resistance Junction-ambient Max.	Rthj-amb	60	°C/W

Electrical Characteristics (T_j = 25°C 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(T _j =25°C)	I _{DSS}	-	-	1	uA	V _{DS} =75, V _{GS} =0
Drain-Source Leakage Current(T _j =55°C)		-	-	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, T _j =25°C
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 T_j=25°C, V_{DD}=20V, L=0.1mH, R_G=25Ω, I_{AS}=20A.

3. Pulse width ≤ 300us, duty cycle ≤ 2%.

Characteristics Curve

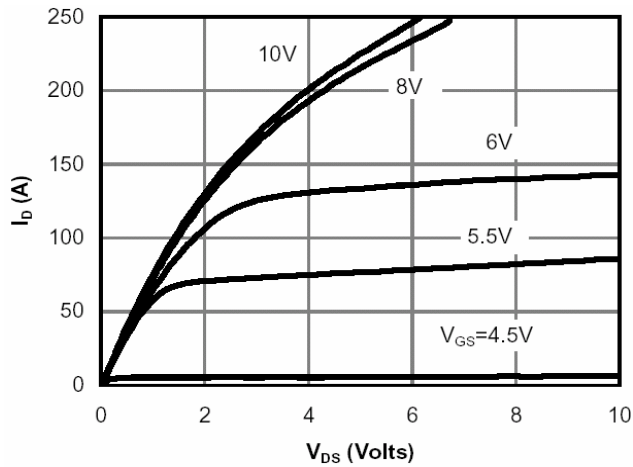


Fig 1. Typical Output Characteristics

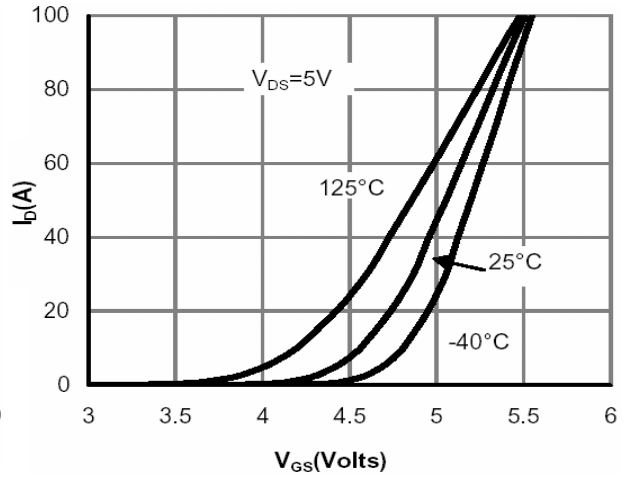


Fig 2. Transfer Characteristics

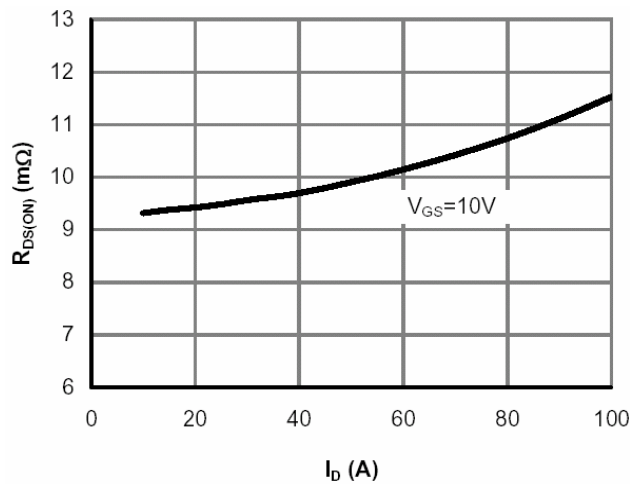


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

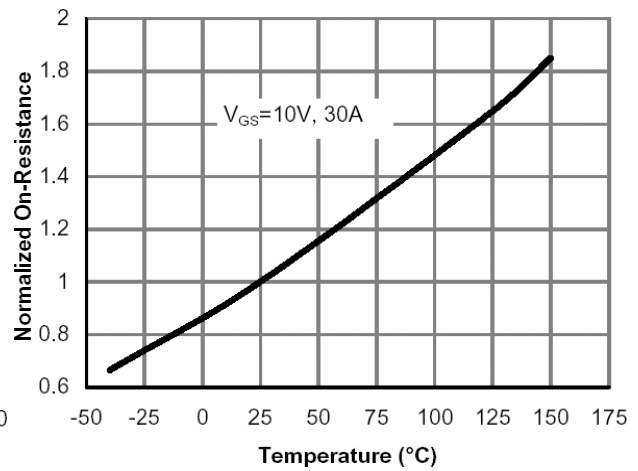


Fig 4. On-Resistance v.s. Junction Temperature

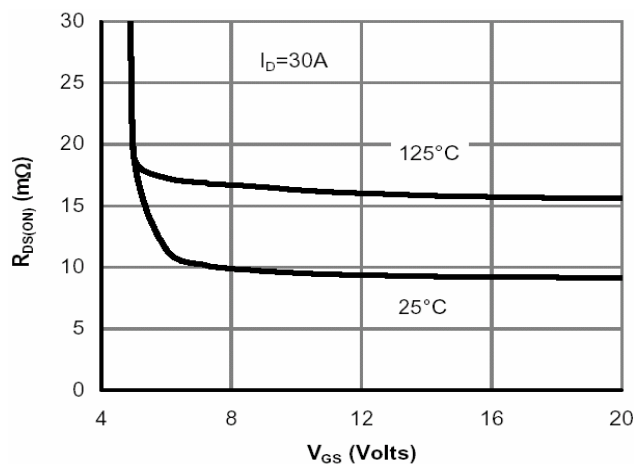


Fig 5. On-Resistance v.s. Gate-Source Voltage

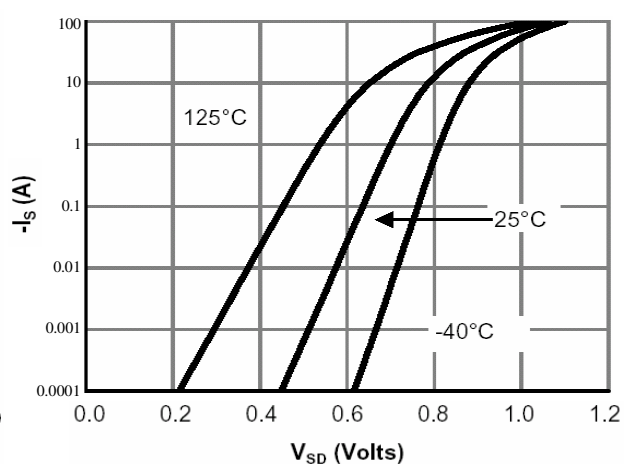


Fig 6. Body Diode Characteristics

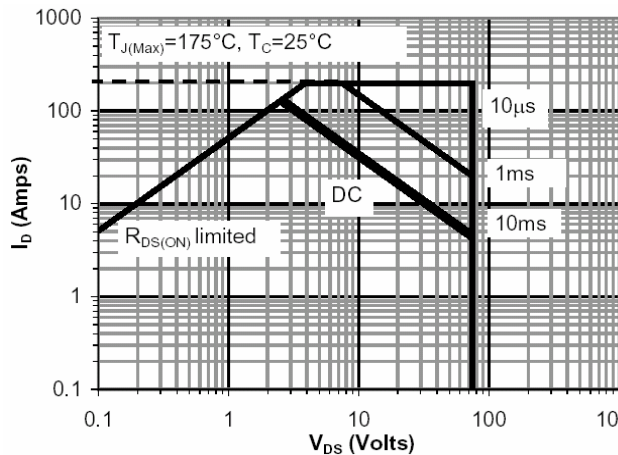
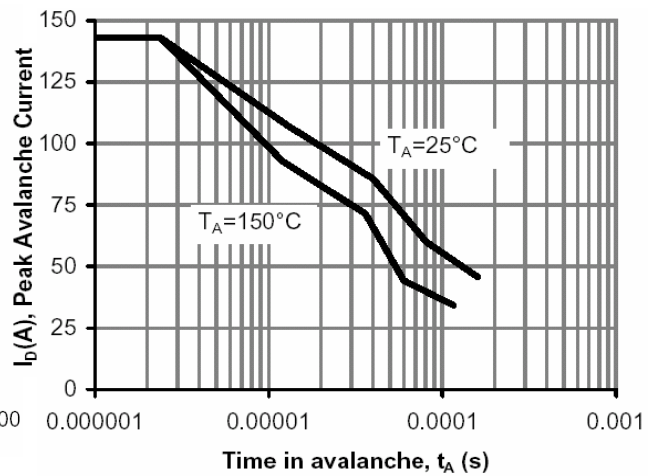


Fig 7. Maximum Safe Operating Area



**Fig 8. Single Pulse
Avalanche Capability**

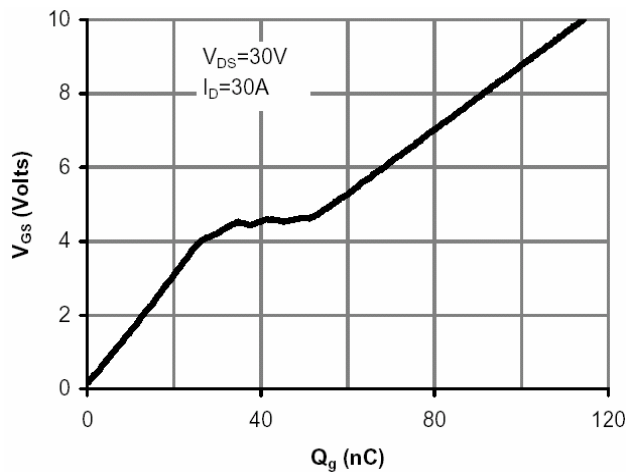


Fig 9. Gate Charge Characteristics

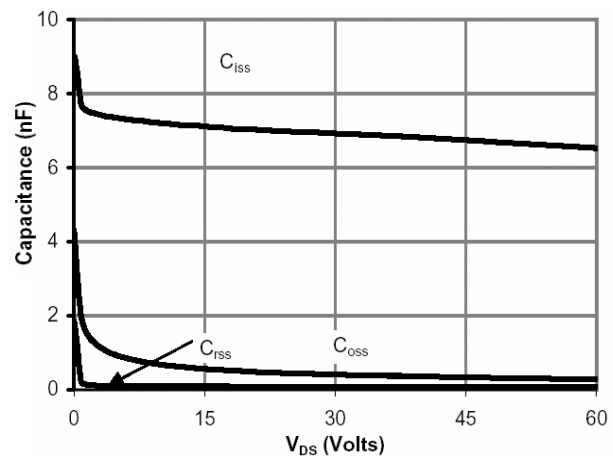


Fig 10. Typical Capacitance Characteristics

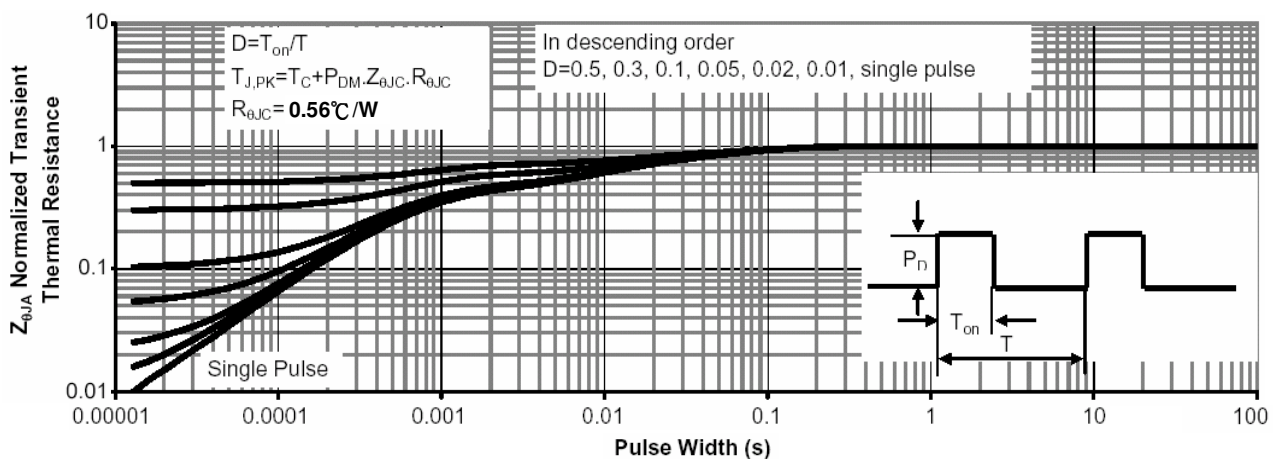


Fig 11. Normalized Maximum Transient Thermal Impedance

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