SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

July 2008

SE75N75
75A,75V N-Channel MOSFET

Revision:A

General Description

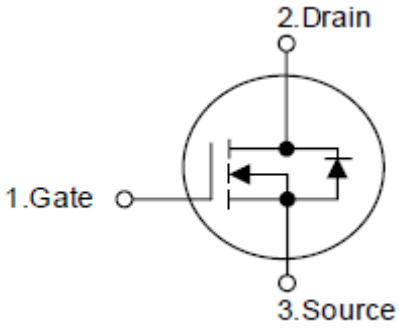
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

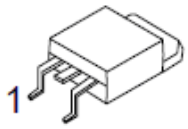
Features

- V_{DS} (V) = 75V
- I_D = 75A
- $R_{DS(ON)}$ <12.5mΩ (V_{GS} = 10V)

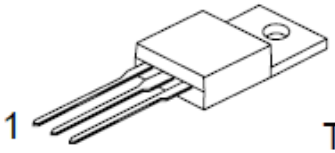
Pin configurations

See Diagram below





TO-252



TO-220(F)

Order Number	Package	Pin Assignment			Packing
		1	2	3	
75N75（F）	TO-220（F）	G	D	S	Tube
75N75N	TO-252	G	D	S	Tube

Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	75	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current (Note 1)	Continuous	I_D	75	A
	100℃		56	
Total Power Dissipation		P_D	220	W
Operating Junction Temperature Range		T_J	-50 to 150	°C

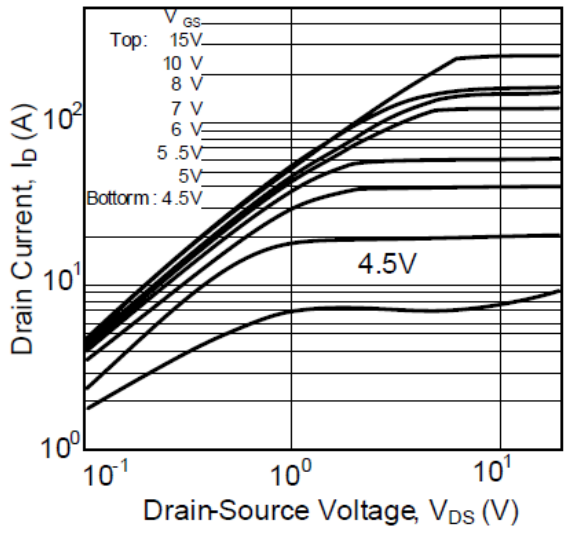
Thermal Characteristics

Parameter		Symbol	Typ	Max
Maximum Junction-to-Ambient A	Steady-State	$R_{\theta JA}$	62.5	-
Maximum Junction-to-- Case	Steady-State	$R_{\theta JC}$	0.8	-

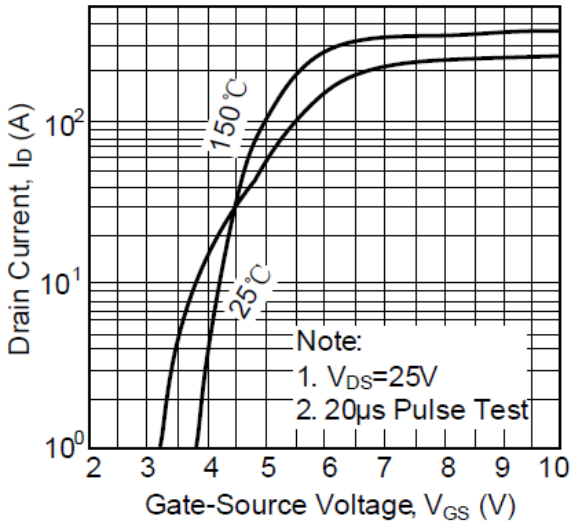
Electrical Characteristics (T_J=25°C unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF/ON CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	75			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=75 V, V_{GS}=0 V			20	μA
I_{GSS}	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±20 V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	2		4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=48A	-	12.5	15	mΩ
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_D=48A	-	1.4	-	V
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1MHz		3300		pF
C_{oss}	Output Capacitance			530		pF
C_{rss}	Reverse Transfer Capacitance			80		pF
T_{ON}	Turn-On Time	V_{DS} =38V, I_D= 48A,V_{GS} = 10 V	-	12	-	ns
T_{OFF}	Turn-Off Time		-	80	-	ns
Tr	Turn-on Rise Time		-	79	-	ns
Tf	Turn-on Fall Time		-	52	-	ns
$Q_g(10)$	Total Gate Charge	V_{DS}=60V,I_D=48A,V_{GS}=10V		90	140	nC
Q_{gs}	Gate-Source Charge			20	35	nC
Q_{gd}	Gate-Drain Charge			30	45	nC
t_{rr}	Body Diode Reverse Recovery Time	I_F=48A, dI/dt=100A/μs		90		ns
Q_{rr}	Body Diode Reverse Recovery Charge	I_F=48A, dI/dt=100A/μs		300		uC

Typical Characteristics

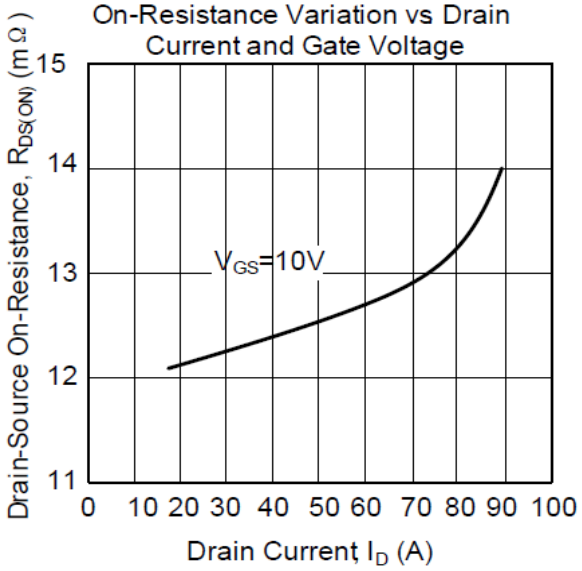
On-State Characteristics



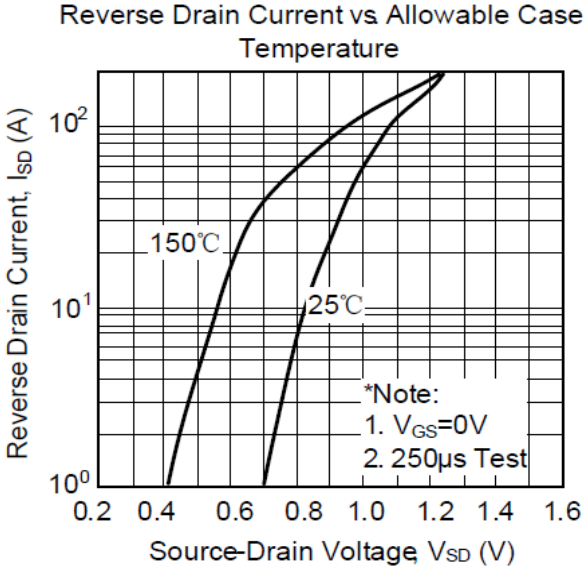
Transfer Characteristics



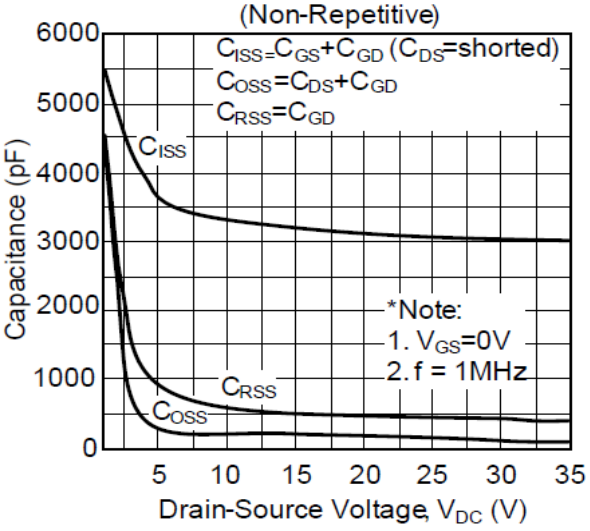
On-Resistance Variation vs Drain Current and Gate Voltage



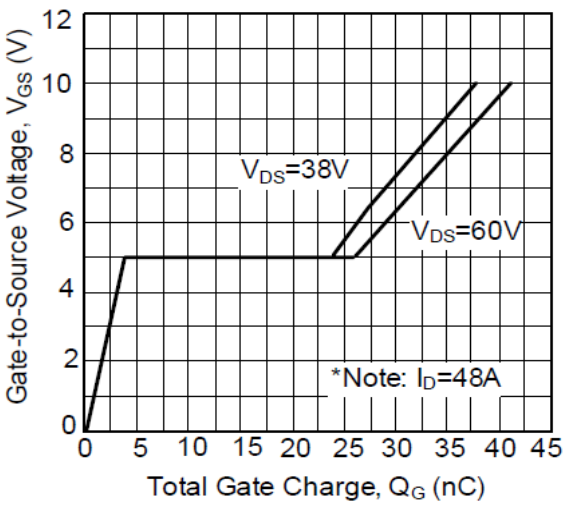
Reverse Drain Current vs. Allowable Case Temperature

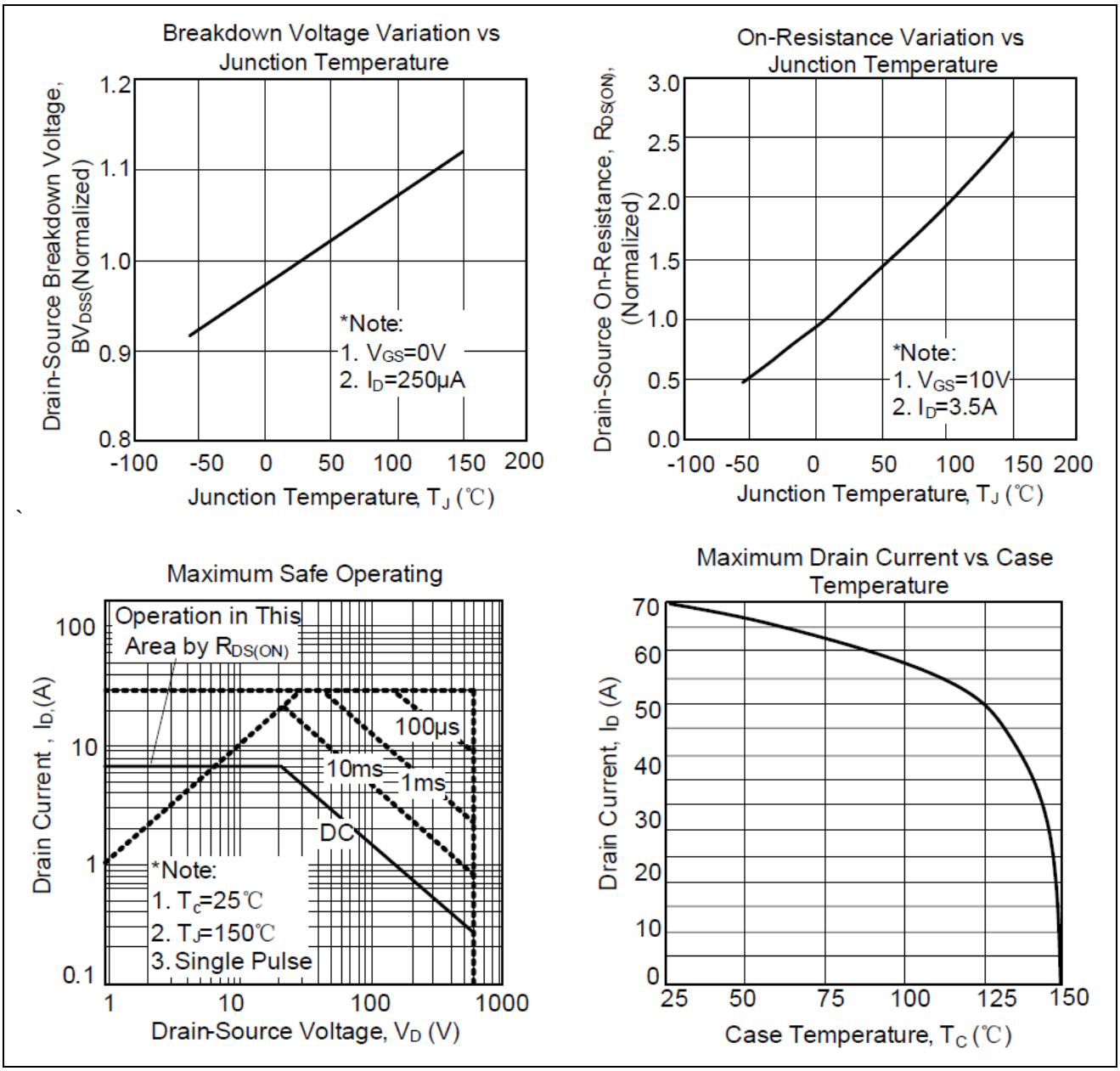


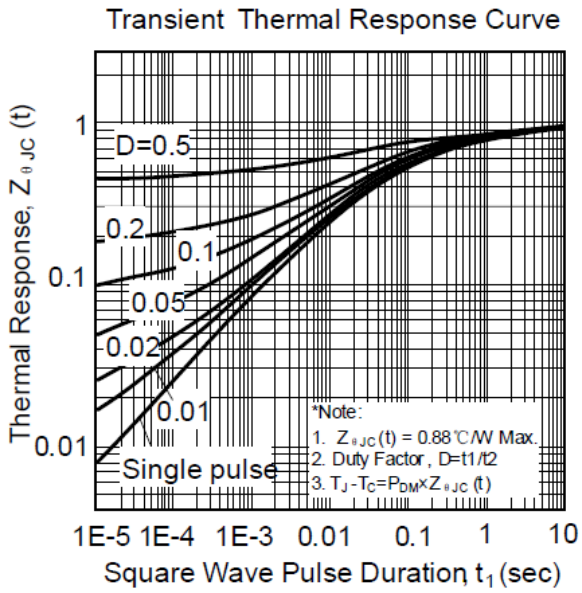
Capacitance Characteristics (Non-Repetitive)



Gate Charge Characteristics




Breakdown Voltage Variation vs Junction Temperature
Drain-Source Breakdown Voltage, BVDSS(Normalized)
1.2
1.1
1.0
0.9
0.8
-100 -50 0 50 100 150 200
Junction Temperature, TJ (℃)
*Note:
1. VGS=0V
2. ID=250μA
On-Resistance Variation vs Junction Temperature
Drain-Source On-Resistance, RDS(ON), (Normalized)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-100 -50 0 50 100 150 200
Junction Temperature, TJ (℃)
*Note:
1. VGS=10V
2. ID=3.5A
Maximum Safe Operating
Drain Current , ID,(A)
100
10
1
0.1
Operation in This Area by RDS(ON)
100μs
10ms
1ms
DC
*Note:
1. TC=25℃
2. TJ=150℃
3. Single Pulse
1 10 100 1000
Drain-Source Voltage, VD (V)
Maximum Drain Current vs. Case Temperature
Drain Current, ID (A)
70
60
50
40
30
20
10
0
25 50 75 100 125 150
Case Temperature, TC (℃)



SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

Add: Building 3, Room 3401-03, No.200 Zhangheng Road, ZhangJiang Hi-Tech Park, Pudong, Shanghai 201203, China
Phone: +86-21-33932402 33932403 33932405 33933508 33933608
Fax: +86-21-33932401
Email: webmaster@sino-ic.com
Website: http://www.sino-ic.com