SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

SED3022M

Dual N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

This type used advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of application

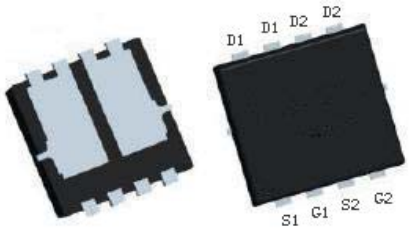
Features

For a single MOSFET

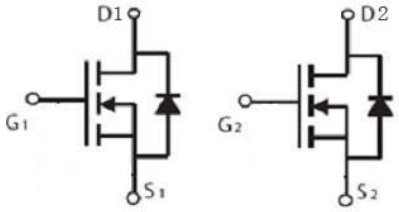
- V_{DS} = 30V
- $R_{DS(ON)}$ = 16mΩ@V_{GS}=10V

Pin configurations

See Diagram below



DFN3x3M



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current	Continuous	I_D	20	A
	Pulsed		67	
Total Power Dissipation	@TA=25℃	P_D	36	W
Single pulse avalanche energy		E_{AS}	72	mJ
Operating Junction Temperature Range		T_J	-55 to 175	℃

Thermal Resistance

Symbol	Parameter	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	-	3	℃/W

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	**Parameter**	**Test Conditions**	**Min**	**Typ**	**Max**	**Units**
OFF CHARACTERISTICS (Note 2)						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0 V	30			V
I_{DSS}	Drain to Source Leakage Current	V_{DS}=30V, VGS=0V			1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=20V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	1		2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=15A	-	16	20	mΩ
g_{FS}	Forward Transconductance	V_{DS}=60V, I_D=7.5A	26			S
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		680		pF
C_{oss}	Output Capacitance			102		pF
C_{rss}	Reverse Transfer Capacitance			71		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge [2]	V_{GS}=10V, V_{DS}=15V, I_D=20A		17.5		nC
Q_{gs}	Gate Source Charge			43		nC
Q_{gd}	Gate Drain Charge			4.1		nC
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=15V, R_{GEN}=3Ω I_D=20A		5		ns
$t_{d(off)}$	Turn-Off Delay Time			19		ns
$t_{d(r)}$	Turn-On Rise Time			12		ns
$t_{d(f)}$	Turn-Off Fall Time			6		ns
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=24A			1.2	V
I_S	Diode Forward Current				30	A
t_{rr}	Reverse Recovery Time	TJ=25℃,IF=20A Di/dt=100A/μs		19		nS
Qrr	Reverse Recovery Charge			10		nC
t_{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible(turn-on is dominated by LS				

Typical Characteristics

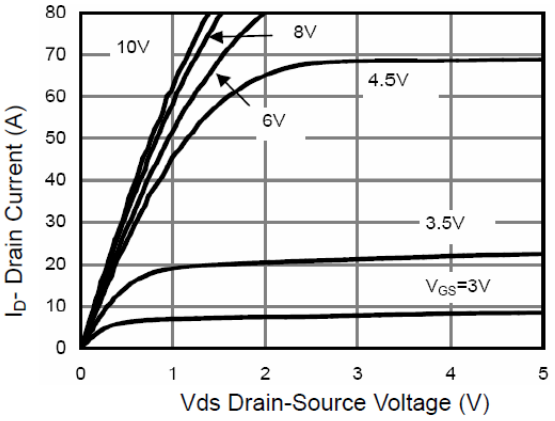


Figure 1 Output Characteristics

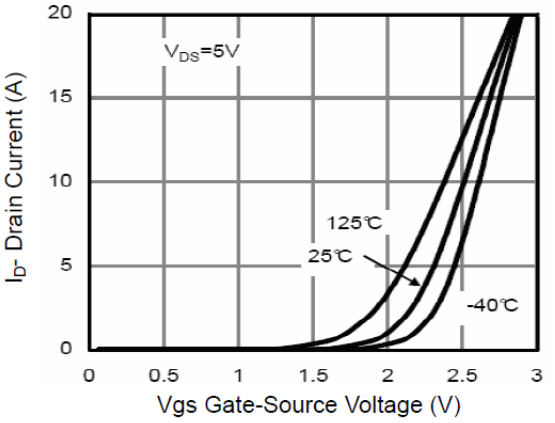


Figure 2 Transfer Characteristics

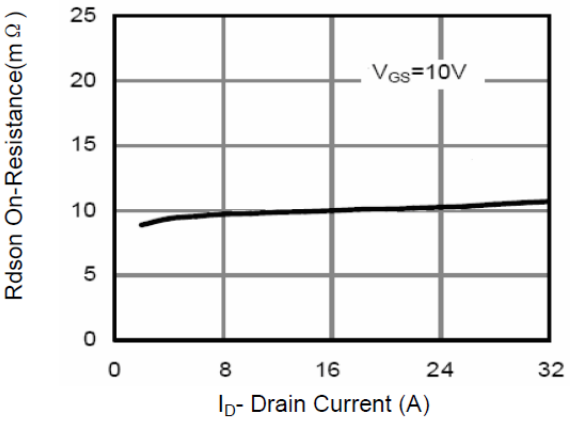


Figure 3 Rdson- Drain Current

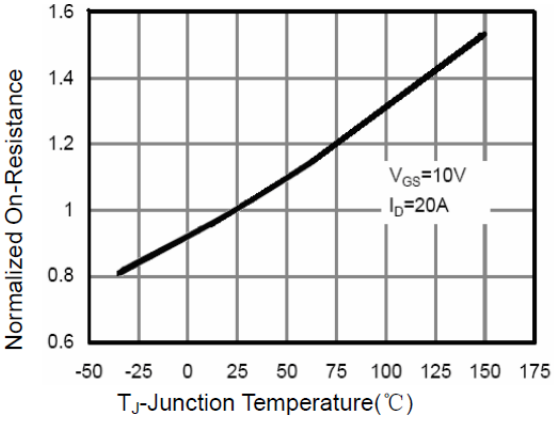


Figure 4 Rdson-Junction Temperature

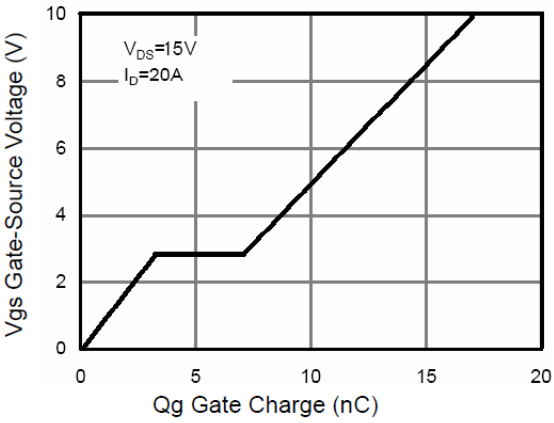


Figure 5 Gate Charge

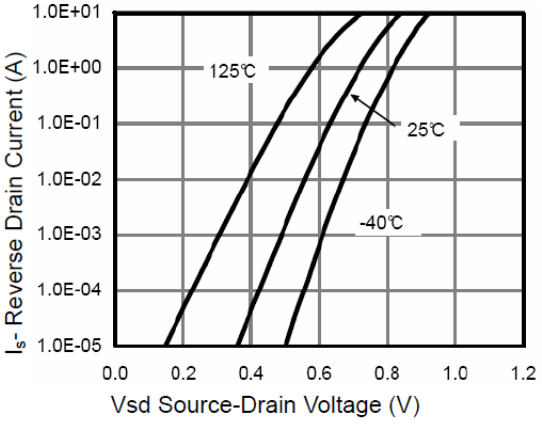


Figure 6 Source- Drain Diode Forward

Typical Characteristics

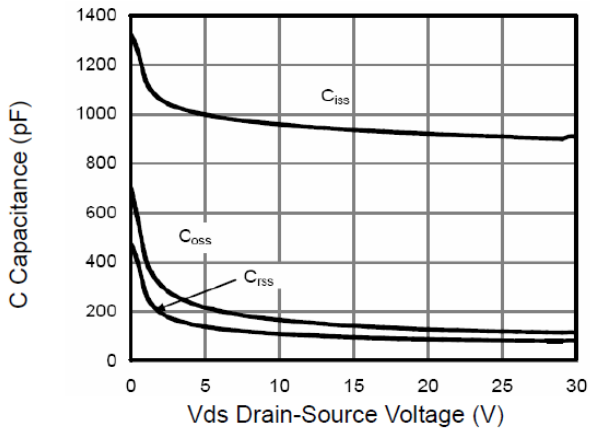


Figure 7 Capacitance vs Vds

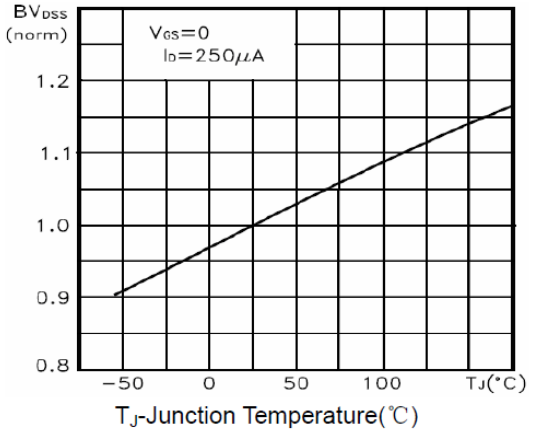


Figure 9 BV_{DSS} vs Junction Temperature

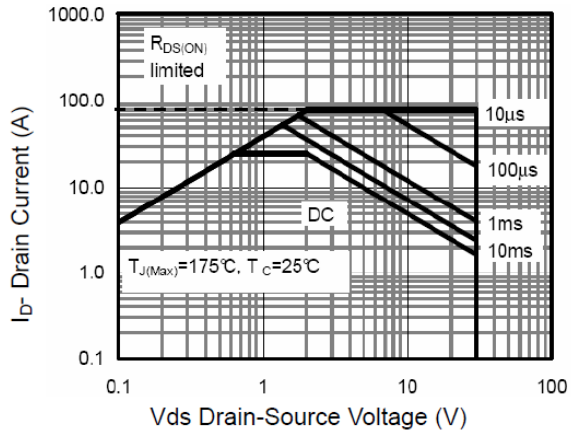


Figure 8 Safe Operation Area

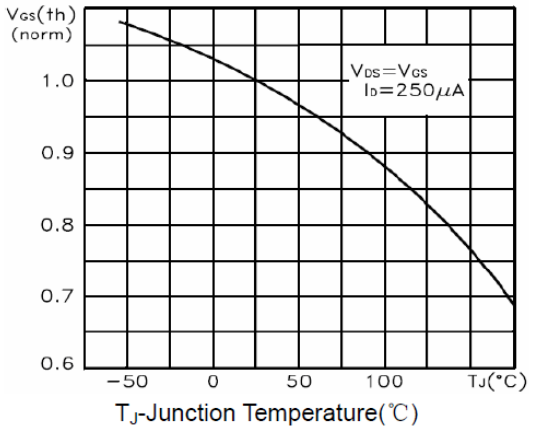


Figure 10 $V_{GS(th)}$ vs Junction Temperature

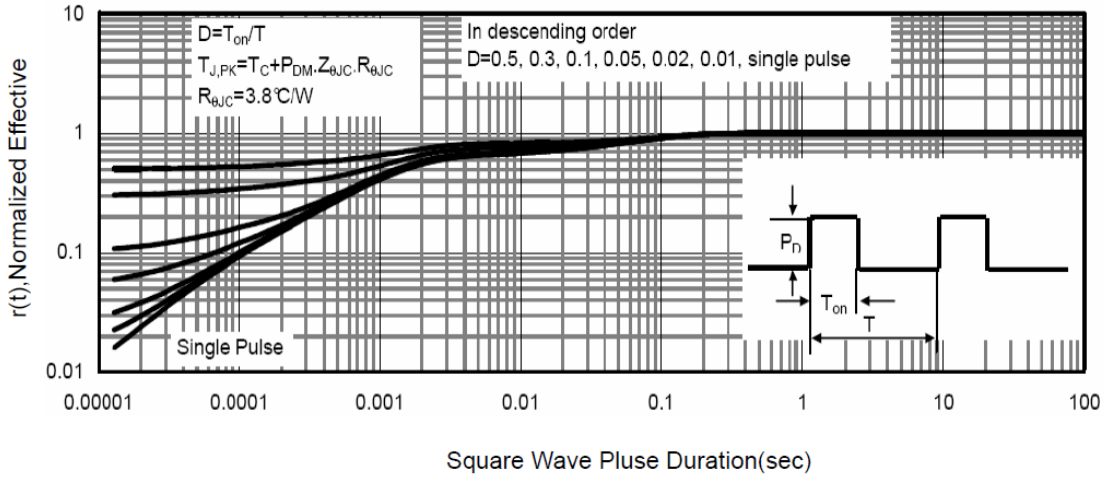
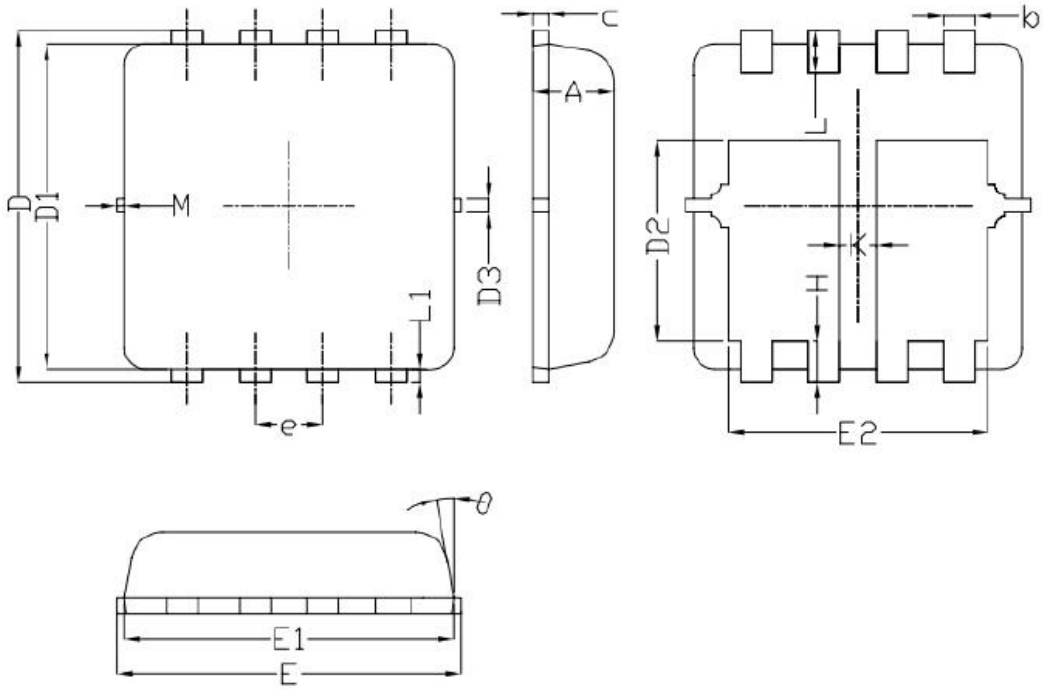


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimension

DFN3X3M



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	--	0.13	--
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	--	0.13	--
K	0.30	--	--
θ	--	10°	12°
M	*	*	0.15
* Not Specified			

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