SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

SED3080M

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

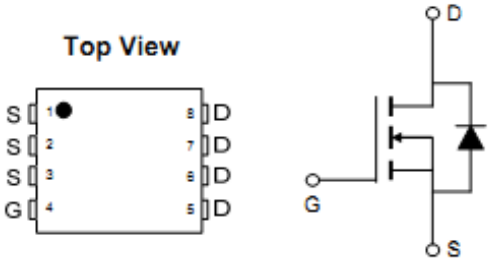
Features

For a single MOSFET

- V_{DS} = 30V
- $R_{DS(ON)}$ = 4.5mΩ@V_{GS}=10V

Pin configurations

See Diagram below



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	80	A
	Pulsed		170	
Total Power Dissipation	@TA=25℃	P_D	83	W
Single pulse avalanche energy		E_{AS}	306	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			1000	nA
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		3	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=25A	-	4.5	6.5	mΩ
		V_{GS}=4.5V, I_D=20A	-	5.8	10	mΩ
g_{FS}	Forward Transconductance	V_{DS}=60V, I_D=7.5A	3	5		S
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		2330		pF
C_{oss}	Output Capacitance			460		pF
C_{rss}	Reverse Transfer Capacitance			230		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge [2]	V_{GS}=10V, V_{DS}=30V, I_D=30A		51		nC
Q_{gs}	Gate Source Charge			14		nC
Q_{gd}	Gate Drain Charge			11		nC
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=10V, R_{GEN}=2.7Ω I_D=30A		20		ns
$t_{d(off)}$	Turn-Off Delay Time			60		ns
$t_{d(r)}$	Turn-On Rise Time			15		ns
$t_{d(f)}$	Turn-Off Fall Time			10		ns
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=24A			1.2	V
I_S	Diode Forward Current				80	A
t_{rr}	Reverse Recovery Time	TJ=25℃,IF=80A Di/dt=100A/μs		32	50	nS
Qrr	Reverse Recovery Charge			12	20	nC
t_{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible(turn-on is dominated by LS				

Typical Characteristics

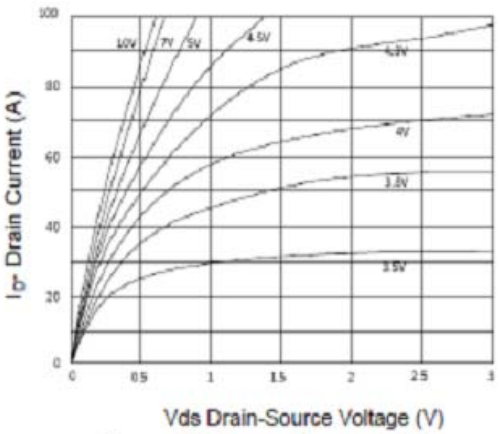


Figure 1 Output Characteristics

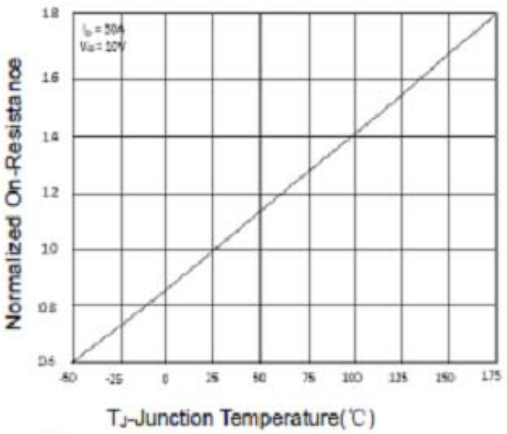


Figure 4 Rdson-JunctionTemperature

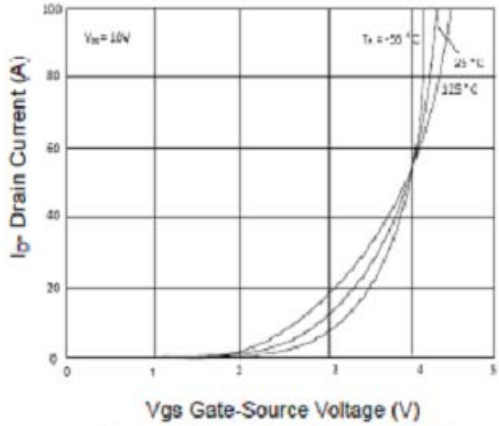


Figure 2 Transfer Characteristics

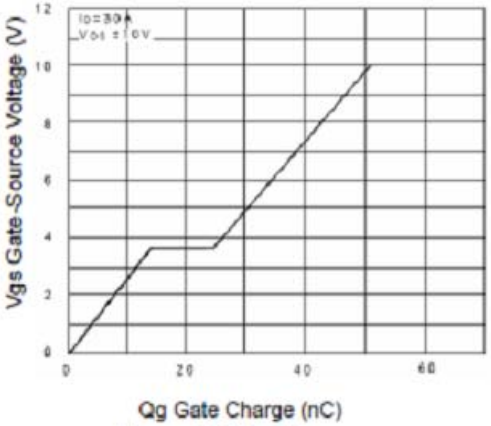


Figure 5 Gate Charge

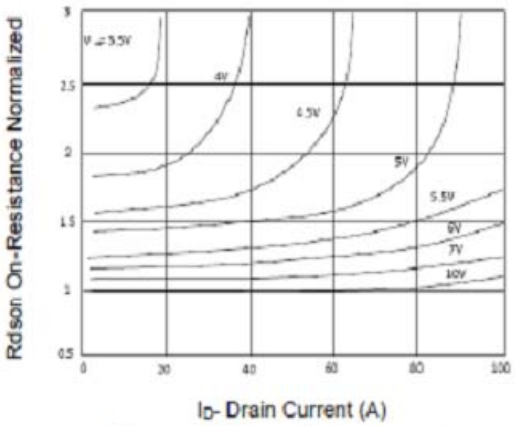


Figure 3 Rdson- Drain Current

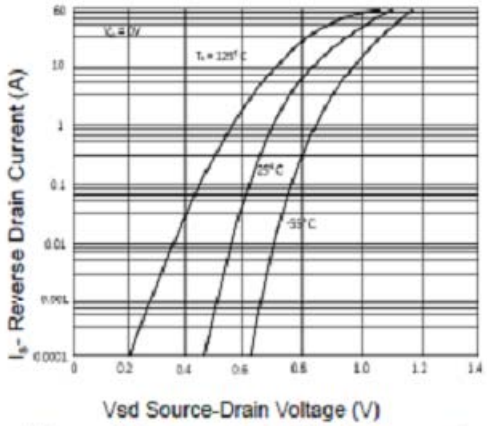


Figure 6 Source- Drain Diode Forward

Typical Characteristics

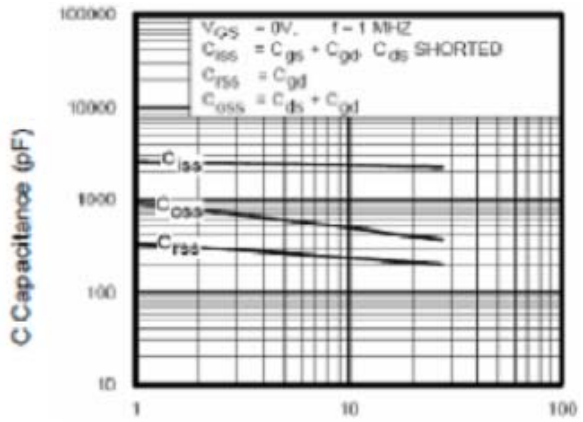


Figure 7 Capacitance vs Vds

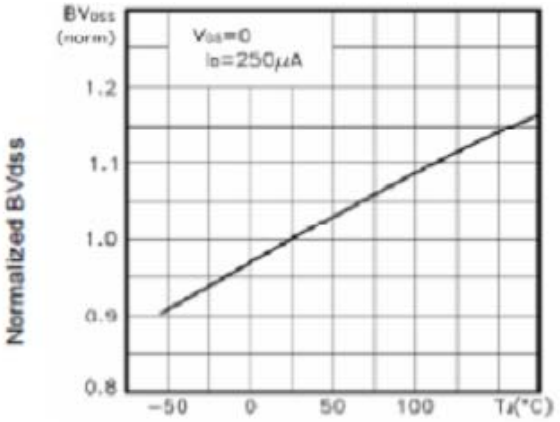


Figure 9 BV_{DSS} vs Junction Temperature

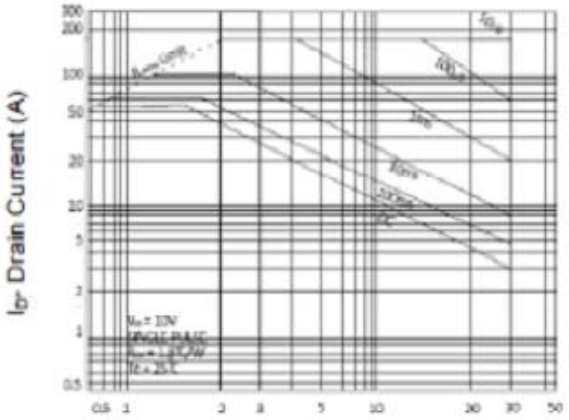


Figure 8 Safe Operation Area

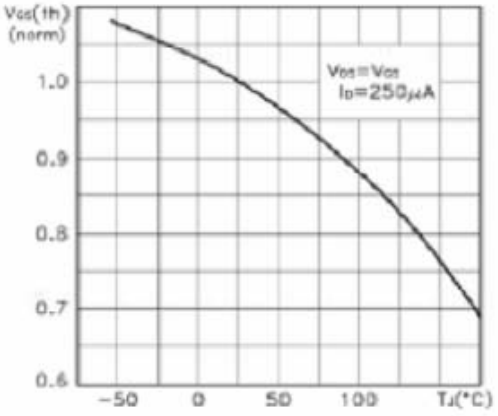


Figure 10 $V_{GS(th)}$ vs Junction Temperature

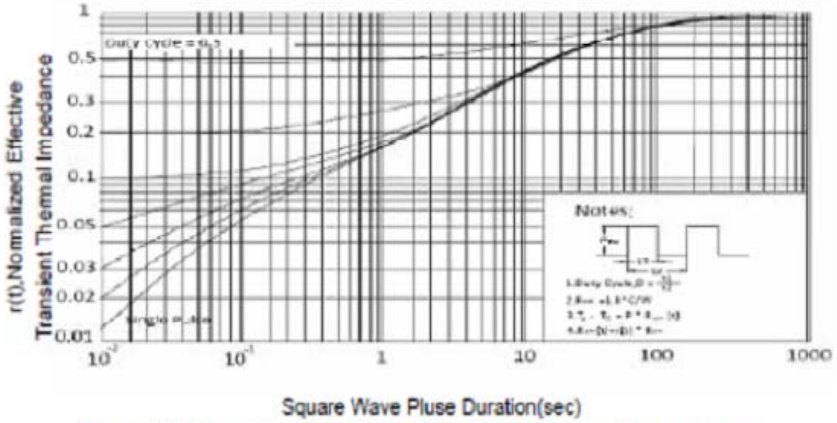
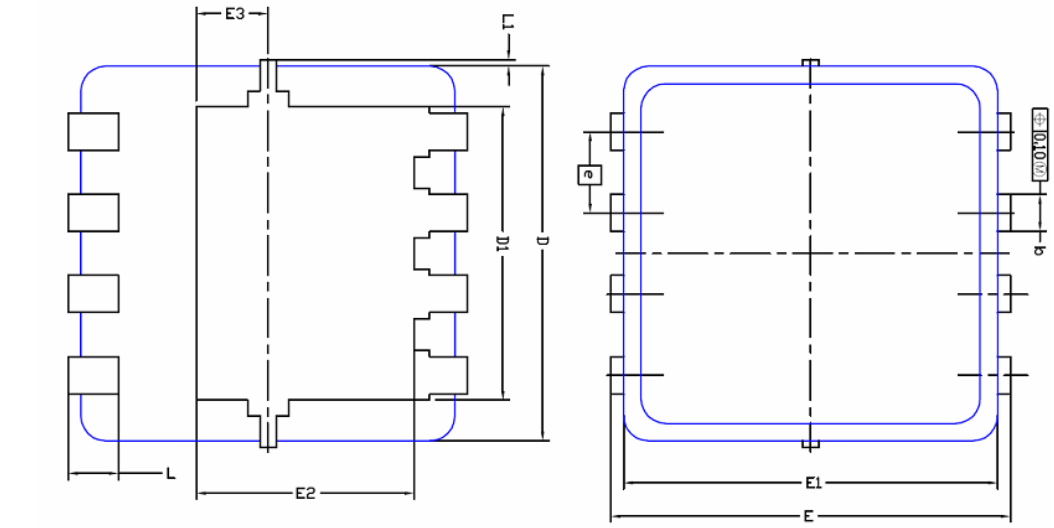


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimension

DFN3X3 EP



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.152	0.25	0.004	0.006	0.010
D	3.00 BSC			0.118 BSC		
D1	2.35 BSC			0.093 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	1.75 BSC			0.069 BSC		
E3	0.575 BSC			0.023 BSC		
e	0.65 BSC			0.026 BSC		
L	0.30	0.40	0.50	0.0118	0.0157	0.0197
L1	0	---	0.100	0	---	0.004
θ1	0°	10°	12°	0°	10°	12°

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.net
Website: http://www.sino-ic.net