SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

SED10070GG

N-Channel Enhancement-Mode MOSFET

Revision: A

General Description

Advanced trench technology to provide excellent RDS(ON), low gate charge and low operation voltage. This device is suitable for using as a load switch or in PWM applications.

- Simple Drive Requirement
- Small Package Outline
- Surface Mount Device

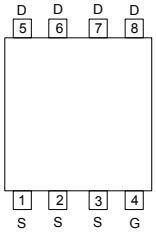
Features

For a single MOSFET

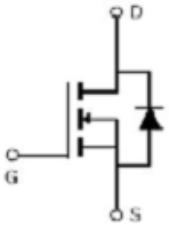
- V_{DS} = 100V
- $R_{DS(ON)}$ = 8.2mΩ @ V_{GS}=10V

Pin configurations

See Diagram below



DFN5*6



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current	Continuous[1,2,3]	I_D	70	A
	Pulsed		280	
Total Power Dissipation	@TA=25℃	P_D	170	W
Single-pulse avalanche energy[4]		E_{AS}	580	mJ
Operating Junction Temperature Range		T_J	-55 to 150	℃

Thermal Resistance

Symbol	Parameter	Min	Typ	Units
$R_{\theta JA}$	Junction to Ambient		0.88	℃/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	100			V
I_{DSS}	Drain to Source Leakage Current	V_{DS}= 100V, V_{GS}=0V			1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=20 V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	2	3	4	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=39A		8.2	9.8	mΩ
g_{FS}	Forward Transconductance	V_{DS}= 25V, I_D=28A	32			S
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1MHz		4400		pF
C_{oss}	Output Capacitance			320		pF
C_{rss}	Reverse Transfer Capacitance			240		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge [2]	V_{DD}=80V, V_{GS}=10V, I_D=39A		95		nC
Q_{gs}	Gate Source Charge			18		nC
Q_{gd}	Gate Drain Charge			25		nC
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=50V, V_{GS}=10V, I_D=39A, R_{GEN}=2.5Ω		12		ns
$t_{d(off)}$	Turn-Off Delay Time			45		ns
$t_{d(r)}$	Turn-On Rise Time			55		ns
$t_{d(f)}$	Turn-Off Fall Time			47		ns
Source-Drain Characteristics						
Symbol	**Parameter**	**Test Condition**	**Min**	**Typ**	**Max**	**Units**
V_{SD}	Diode forward voltage	V_{GS}=0V, I_S=100A		0.85	1.2	V
I_S	Diode forward current				57	A
T_{rr}	Reverse recovery time[7]	T_J=25℃,I_F=28A di/dt=100A/μs		36		ns
Q_{rr}	Reverse recovery charge[7]			56		nC

Typical Characteristics

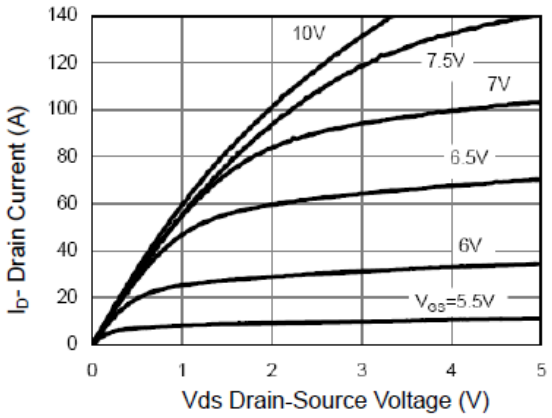


Figure 1 Output Characteristics

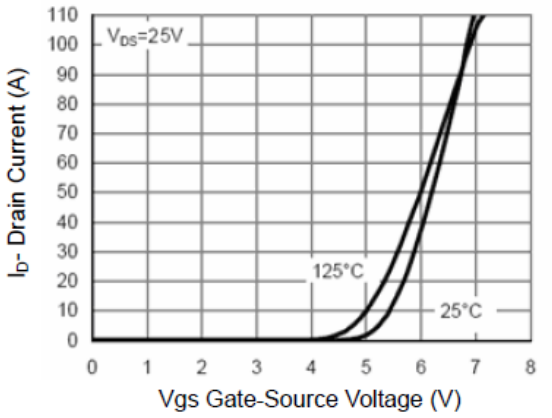


Figure 2 Transfer Characteristics

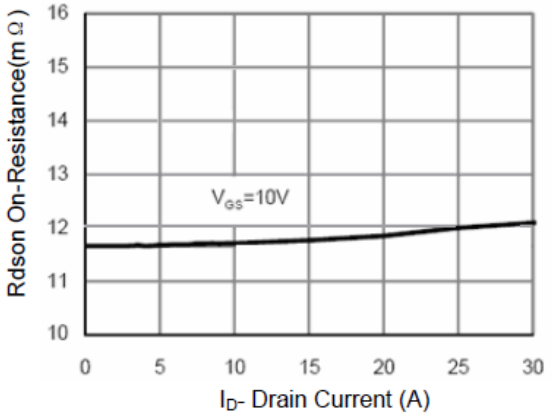


Figure 3 Rdson- Drain Current

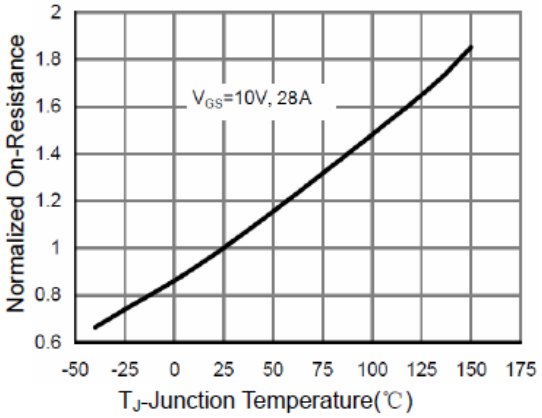


Figure 4 Rdson-JunctionTemperature

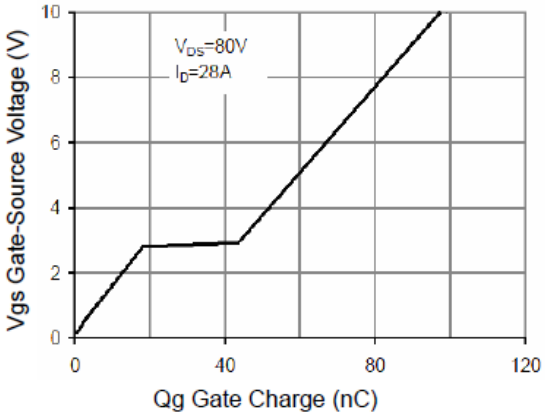


Figure 5 Gate Charge

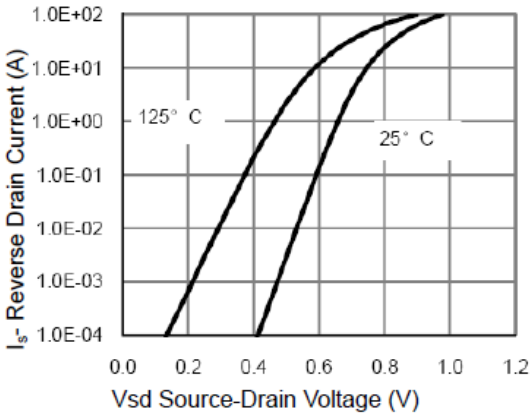


Figure 6 Source- Drain Diode Forward

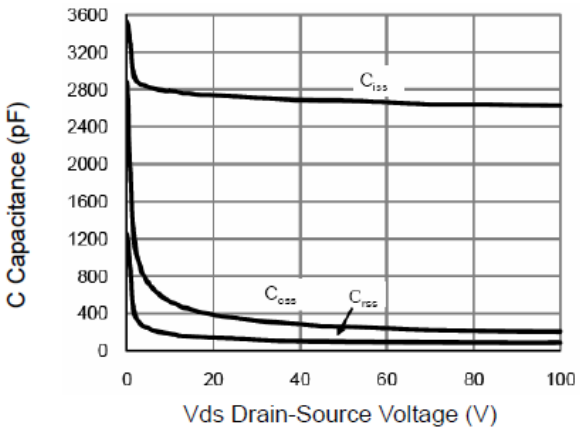


Figure 7 Capacitance vs Vds

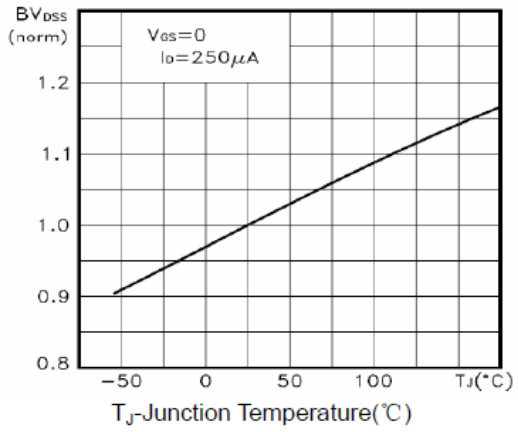


Figure 9 BV_{DSS} vs Junction Temperature

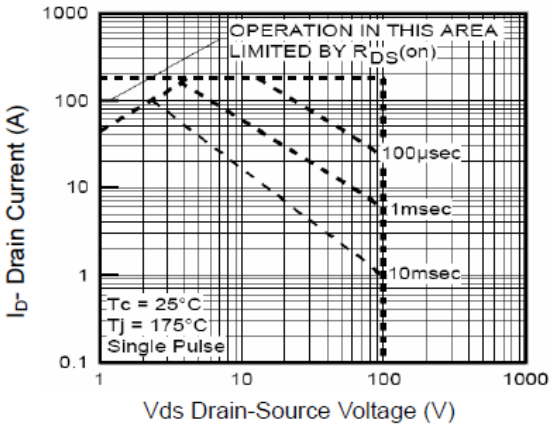


Figure 8 Safe Operation Area

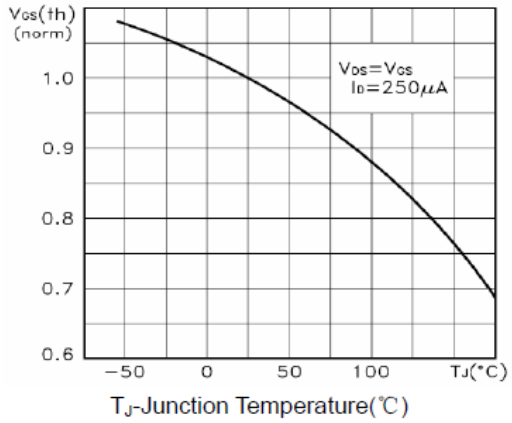


Figure 10 $V_{GS(th)}$ vs Junction Temperatur

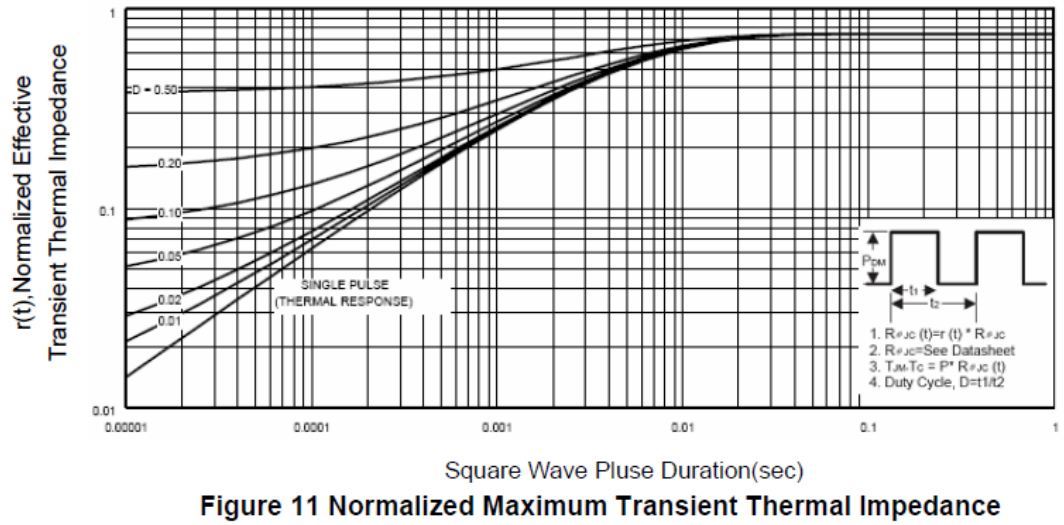
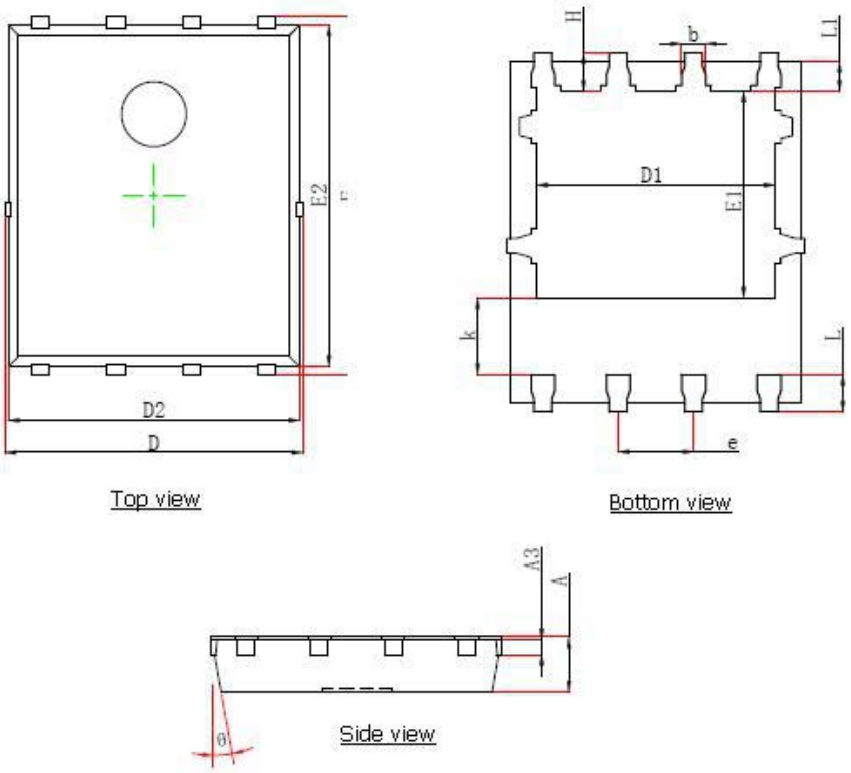


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Outline Dimension

DFN5 × 6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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