SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

SE630K

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

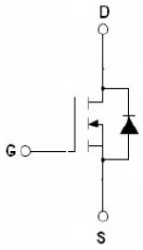
For a single MOSFET

- V_{DS} = 200V
- $R_{DS(ON)}$ =260mΩ @ V_{GS}=10V

Pin configurations

See Diagram below

TO-252



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±10	V
Drain Current	Continuous	I_D	11	A
	Pulsed		50	
Total Power Dissipation	@TA=25℃	P_D	2.5	W
Operating Junction Temperature Range		T_J	-55 to 175	℃

Thermal Resistance

Symbol	Parameter	Typ	Max	Units
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	-	50	℃/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	200			V
I_{DSS}	Drain to Source Leakage Current	V_{DS}=30V, V_{GS}=0V			1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=10V			100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	1.5	1.9	2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=3A	-	260	310	mΩ
g_{FS}	Forward Transconductance	V_{DS}=10V, I_D=11A	25			S
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		1155		pF
C_{oss}	Output Capacitance			260		pF
C_{rss}	Reverse Transfer Capacitance			95		pF
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=8A		17.5		nC
Q_{gs}	Gate Source Charge			4.5		nC
Q_{gd}	Gate Drain Charge			2.5		nC
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=5V, V_{DS}=15V, R_{GEN}=3Ω I_D=11A		10		ns
$t_{d(off)}$	Turn-Off Delay Time			40		ns
$t_{d(r)}$	Turn-On Rise Time			16		ns
$t_{d(f)}$	Turn-Off Fall Time			10.8		ns
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=24A			1.2	V
I_S	Diode Forward Current				11	A

Typical Characteristics

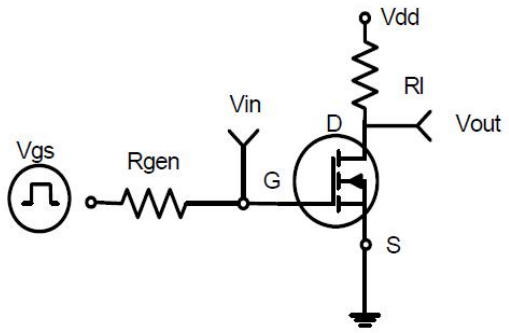


Figure 1:Switching Test Circuit

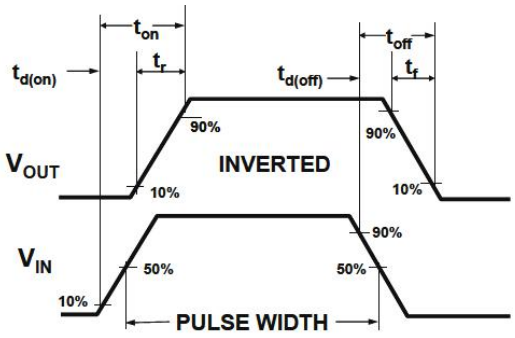


Figure 2:Switching Waveforms

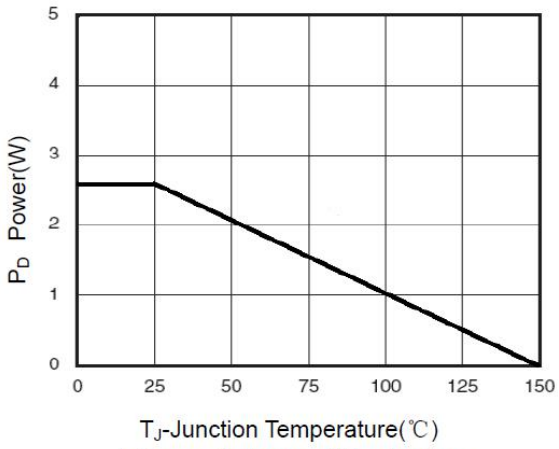


Figure 3 Power Dissipation

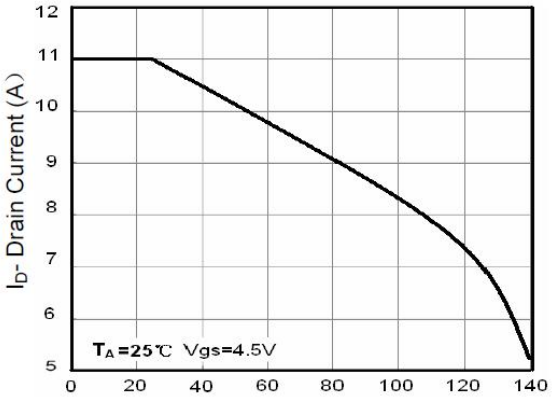


Figure 4 Drain Current

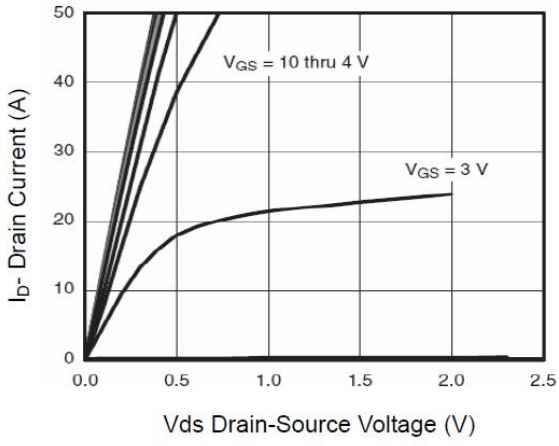


Figure 5 Output Characteristics

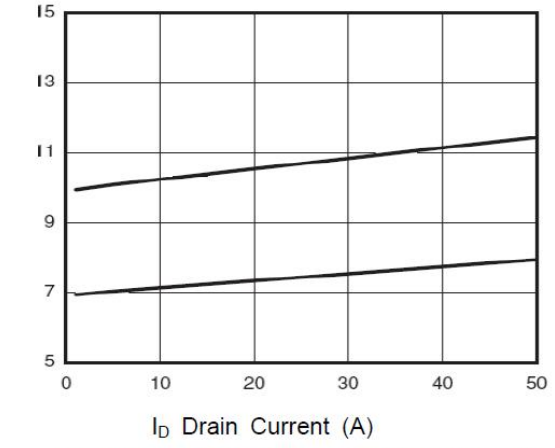


Figure 6 Drain-Source On-Resistance

Typical Characteristics

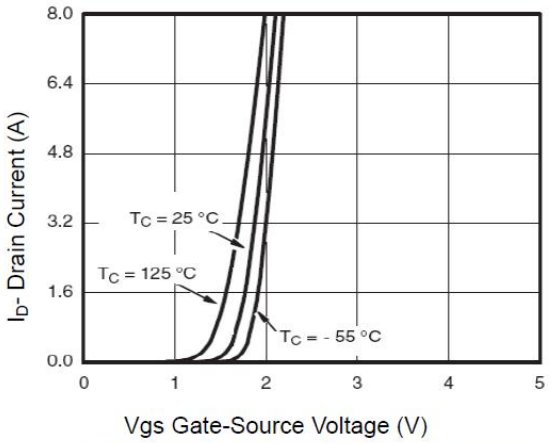


Figure 7 Transfer Characteristics

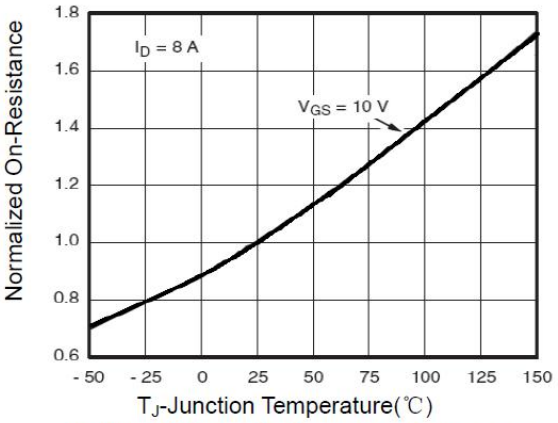


Figure 8 Drain-Source On-Resistance

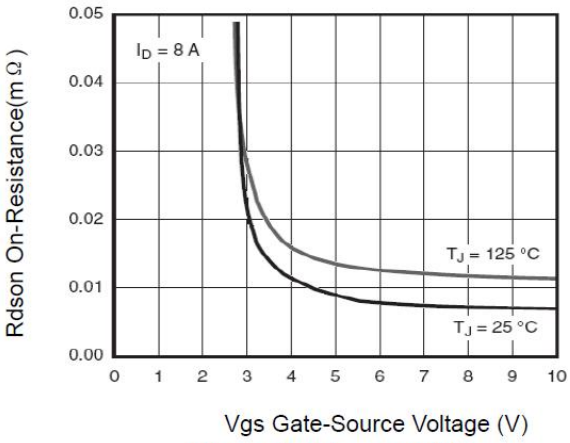


Figure 9 Rdson vs Vgs

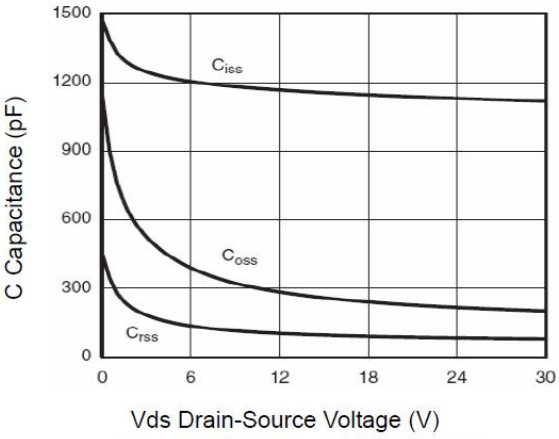


Figure 10 Capacitance vs Vds

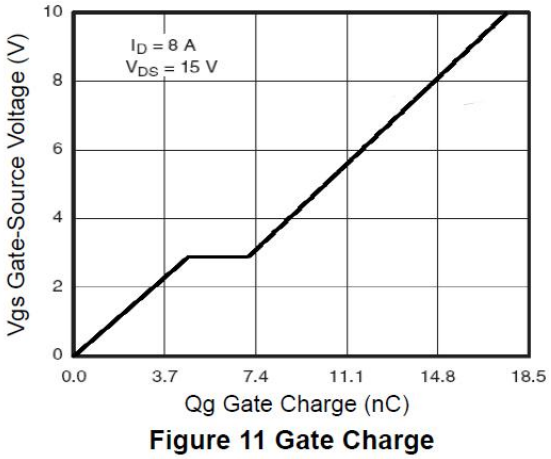


Figure 11 Gate Charge

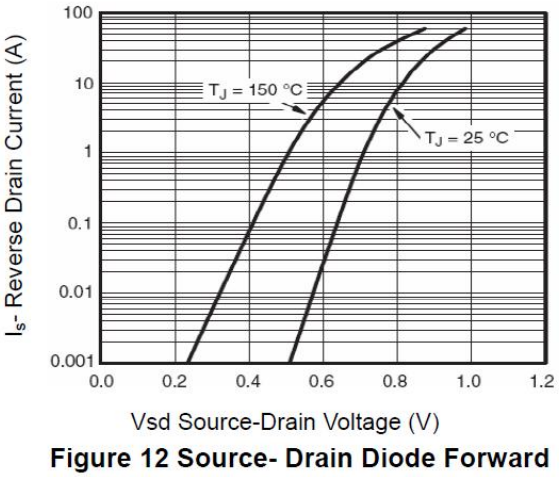
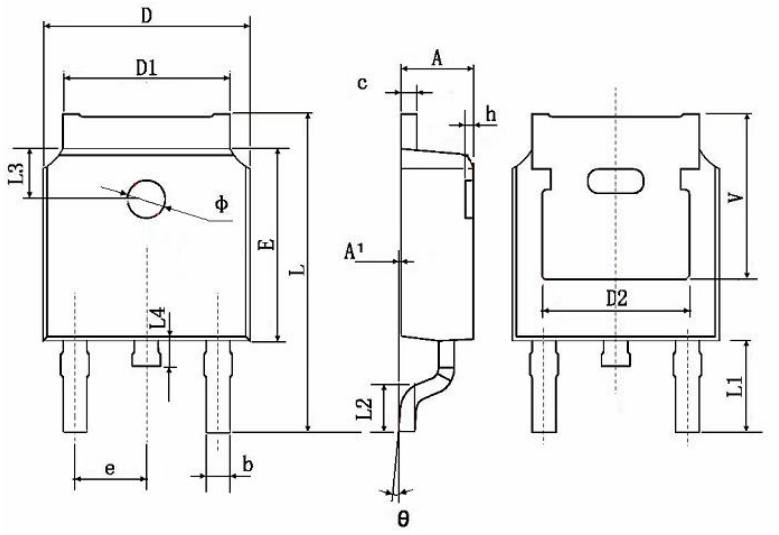


Figure 12 Source- Drain Diode Forward

Package Outline Dimension

TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	0.483 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	

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