SE2102
N-Channel Enhancement-Mode MOSFET

Revision:A

General Description

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

General Description

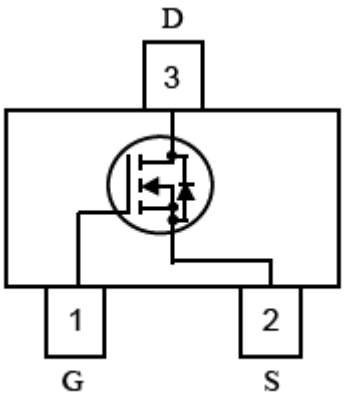
- These N-Channel enhancement mode field effect transistors

Features

- VDS (V) = 60 V
- ID = 0.5 A
- High density cell design for low RDS
- Voltage controlled small signal switch. Rugged and reliable.
- High saturation current capability.

Pin configurations

See Diagram below



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	20	V
Drain Current (Note 1)	Continuous	I_D	0.5	A
	Pulsed		2.4	
Total Power Dissipation		P_D	350	mW
Operating Junction Temperature Range		T_J	-55 to 150	°C

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=10μA, V_{GS}=0 V	60			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60 V, V_{GS}=0 V			1	μA
I_{GSS}	Gate-Body leakage current	V_{DS}=0 V, V_{GS}=±20 V			±100	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=VGS I_D=250μA	1	2.1	2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=500m A	-	-	7.5	Ω
		V_{GS}=4.5V, I_D=50mA	-	-	13.5	
g_{FS}	Forward Transconductance	V_{Ds}≧2V_{DS}(on), I_D=200mA	80	320		mS
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=25V, F=1MHz	-	20	50	pF
C_{oss}	Output Capacitance		-	11	25	pF
C_{rss}	Reverse Transfer Capacitance		-	4	5	pF
T_{ON}	Turn-On Time	V_{D0} =30V, R_L= 150Ω,I_D= 200 mA,V_{DS} = 10 V,R_{GEN} = 25Ω	-	-	20	ns
T_{OFF}	Turn-Off Time	V_{D0}=30V, R_L =150Ω,I_D= 200 mA,V_{GS} = 10 V,R_{GEN} = 25Ω	-	-	20	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Continuous Drain-Source Diode Forward Current	I_S	-	-	-	120	mA
Pulsed Drain-Source Diode Forward Current	I_{SM}	-	-	-	800	mA
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 115 mA	-	0.88	1.5	V

Typical Characteristics

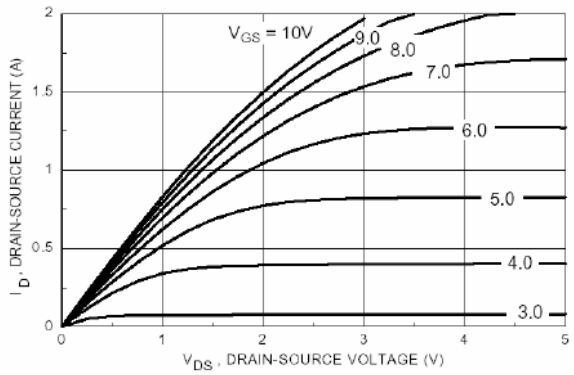


Figure 1. On-Region Characteristics

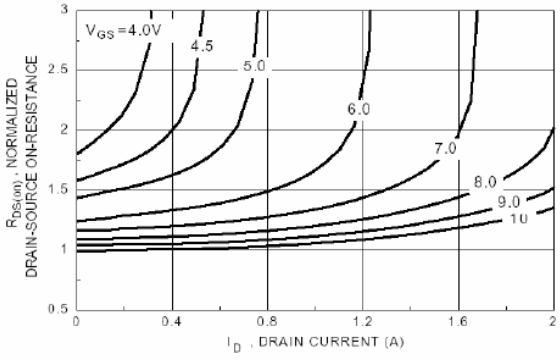


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

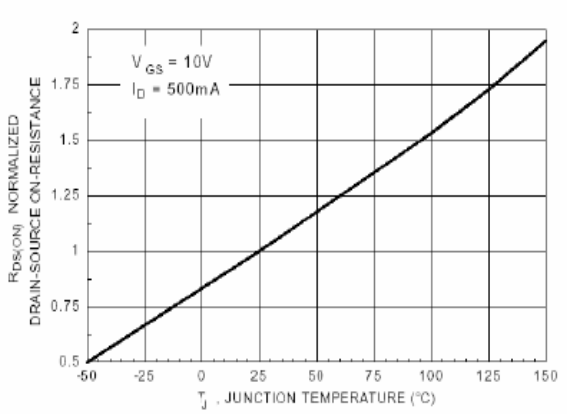


Figure 3. On-Resistance Variation with Temperature

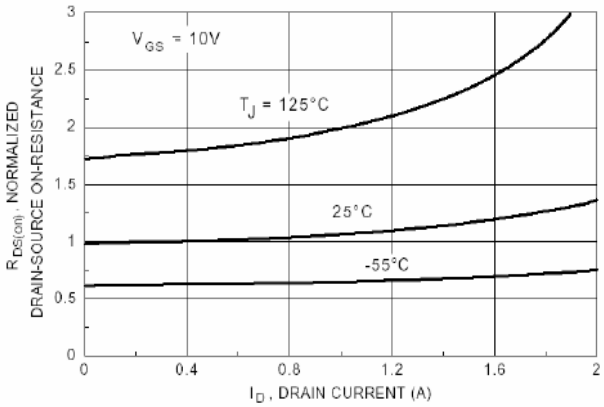


Figure 4. On-Resistance Variation with Drain Current and Temperature

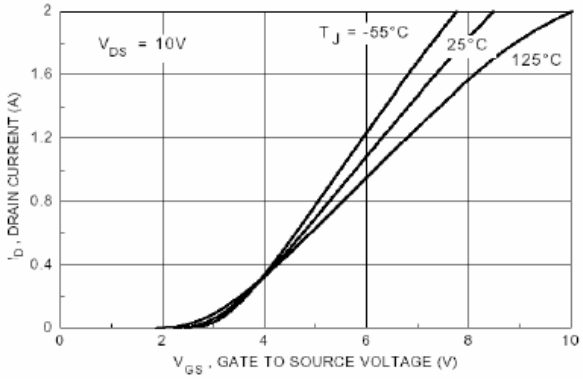


Figure 5. Transfer Characteristics

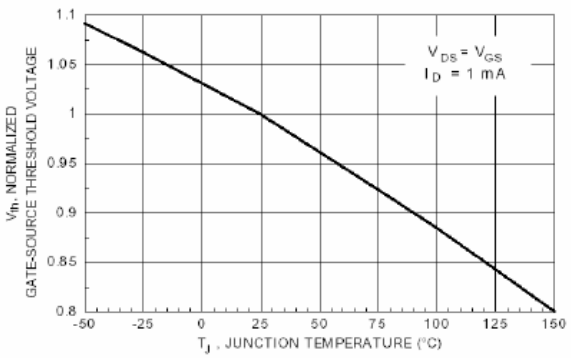


Figure 6. Gate Threshold Variation with Temperature

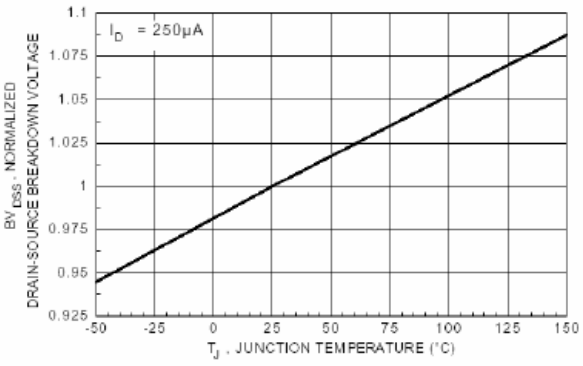


Figure 7. Breakdown Voltage Variation with Temperature

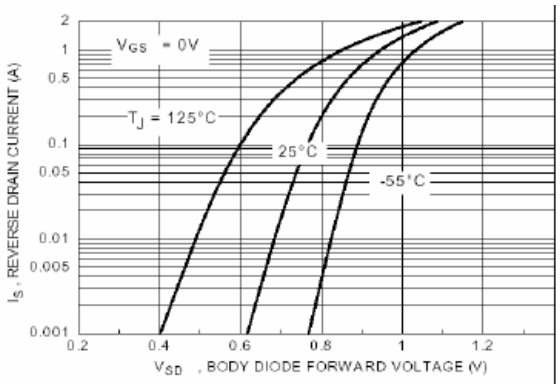


Figure 8. Body Diode Forward Voltage Variation with

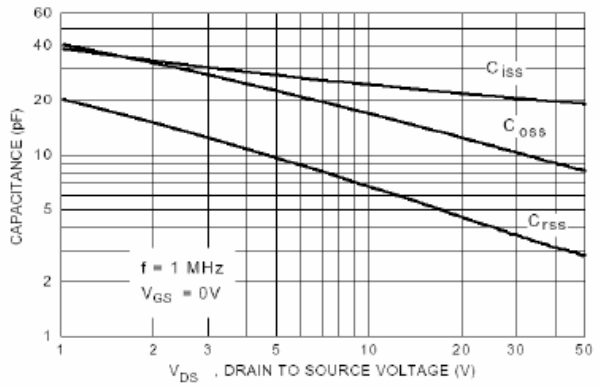


Figure 9. Capacitance Characteristics

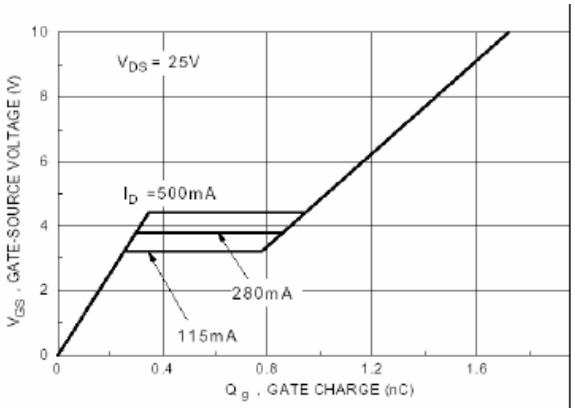


Figure 10. Gate Charge Characteristics

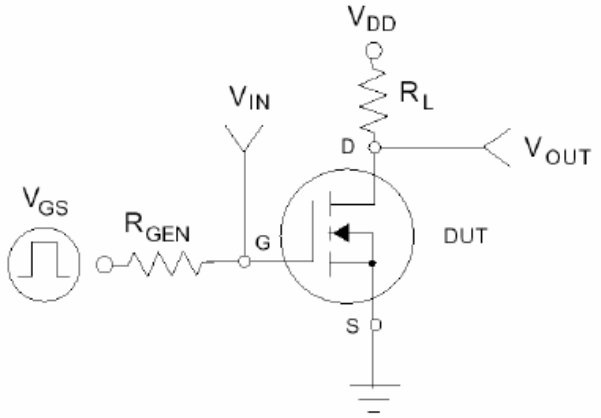


Figure 11.

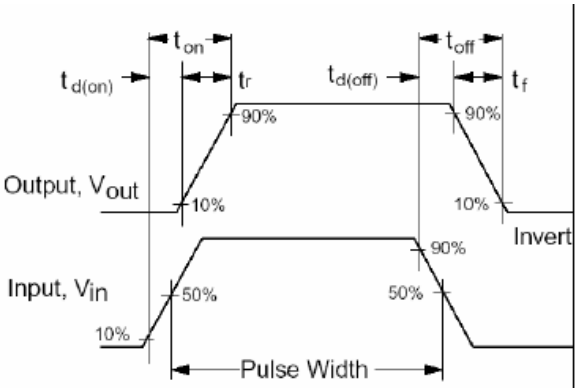


Figure 12. Switching Waveforms

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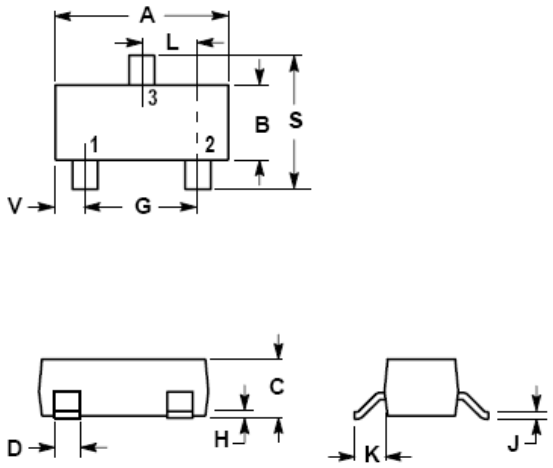

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

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