

SE2315
P-Channel 20-V (D-S) MOSFET

General Description

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

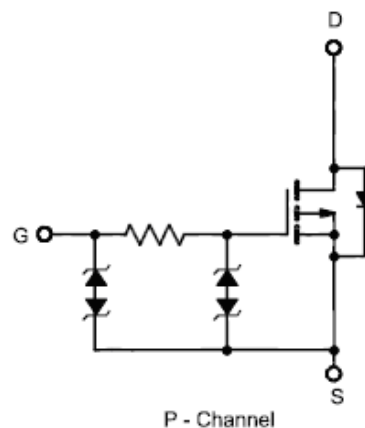
Features

- $R_{DS(ON)} \cong 50m\Omega @ V_{GS} = -4.5V$
- $R_{DS(ON)} \cong 65m\Omega @ V_{GS} = -2.5V$
- $R_{DS(ON)} \cong 75m\Omega @ V_{GS} = -1.8V$
- ESD rating : 2000V HBM

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter

Pin configurations



Absolute Maximum Ratings

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	± 8	V
Continuous Drain Current ($t_J = 150^\circ C$)	I_D	-4.0	A
		-3.5	
Pulsed Drain Current	I_{DM}	-20	A

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Continuous Source Current (Diode Conduction)		I_S	-2.2	A
Maximum Power Dissipation	TA=25°C	P_D	1.4	W
	TA=70°C		0.9	
Operating Junction Temperature		T_J	-55 to 150	°C
Storage Temperature Range		T_{stg}	-55 to 150	°C

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)						
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.25	-0.5	-1	V
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 4.5V$			± 5	μA
		$V_{DS}=0V, V_{GS}=\pm 8V$			± 10	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-16V, V_{GS}=0V$			-1	μA
		$V_{DS}=-16V, V_{GS}=0V$ $T_J=55^\circ\text{C}$			-10	
$I_{D(ON)}$	On-State Drain Current ^a	$V_{DS}=-5V, V_{GS}=-4.5V$	-20			A
$R_{DS(ON)}$	Drain-Source On-Resistance ^a	$V_{GS}=-4.5V, I_D=-4.0A$		45	50	$m\Omega$
		$V_{GS}=-2.5V, I_D=-3.0A$		52	65	
		$V_{GS}=-1.8V, I_D=-2.0A$		60	75	
V_{SD}	Diode Forward Voltage	$I_S=-1.0A, V_{GS}=0V$		-0.78	-1	V
Dynamic						
Q_g	Total Gate Charge	$V_{DS}=-10V, V_{GS}=-4.5V,$ $I_D=-4A$		10.5	12	nC
Q_{gs}	Gate-Source Charge			0.5		
Q_{gd}	Gate-Drain Charge			3		
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V,$ $f=1\text{MHz}$		220	250	pF
C_{oss}	Output Capacitance			95		
C_{rss}	Reverse Transfer Capacitance			30		

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td(on)	Turn-On Delay Time	$V_{DS}=-10V, R_L=2.5\Omega$ $R_{GEN}=3\Omega, V_{GS}=-4.5V$		560	650	ns
tr	Turn-On Rise Time			4000	5000	
td(off)	Turn-Off Delay Time			400	500	
tf	Turn-On Fall Time			4000	5000	

Typical Characteristics

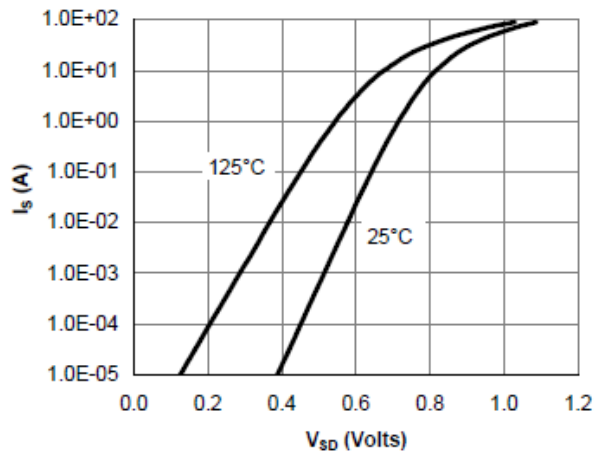
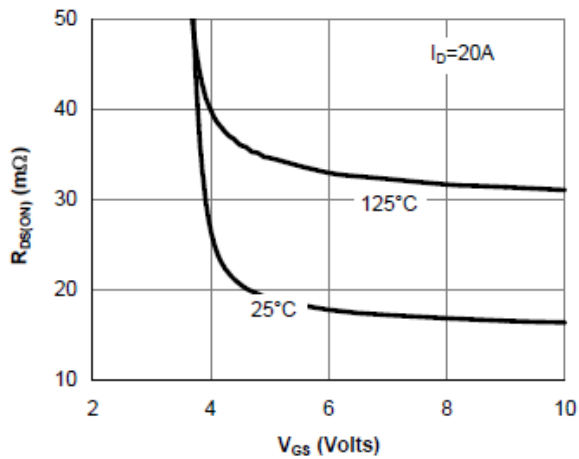
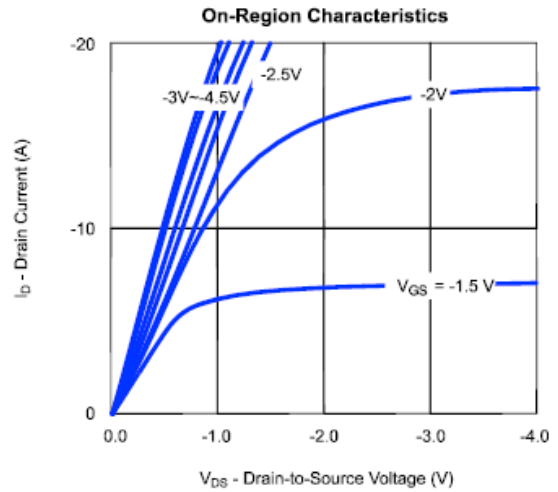
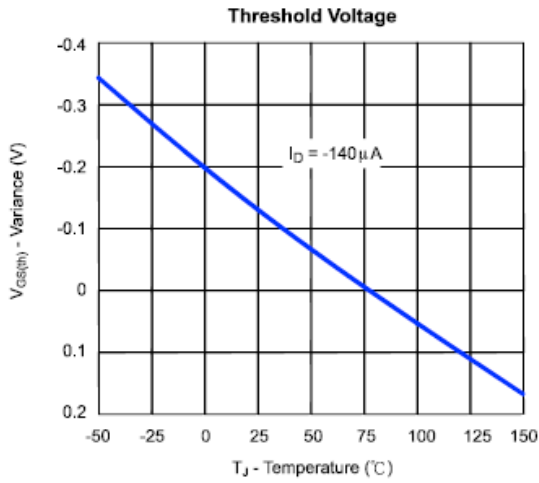
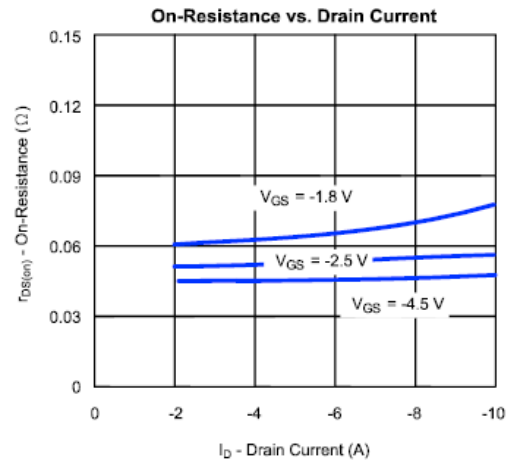
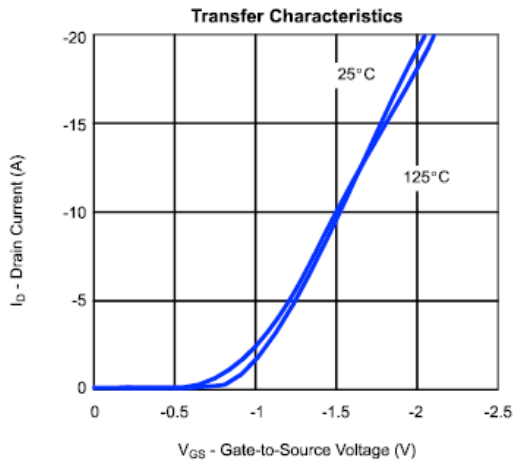
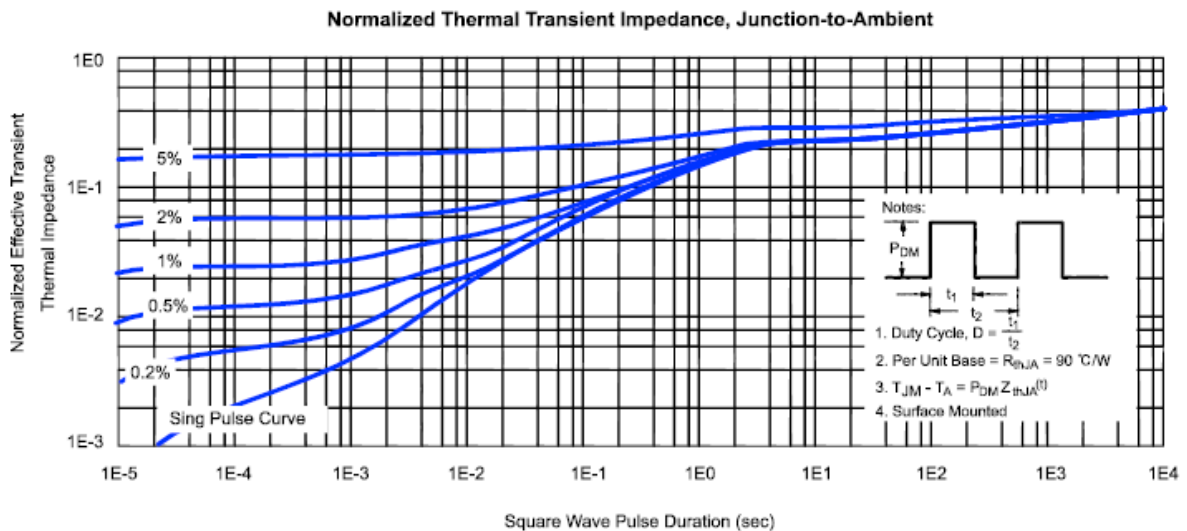
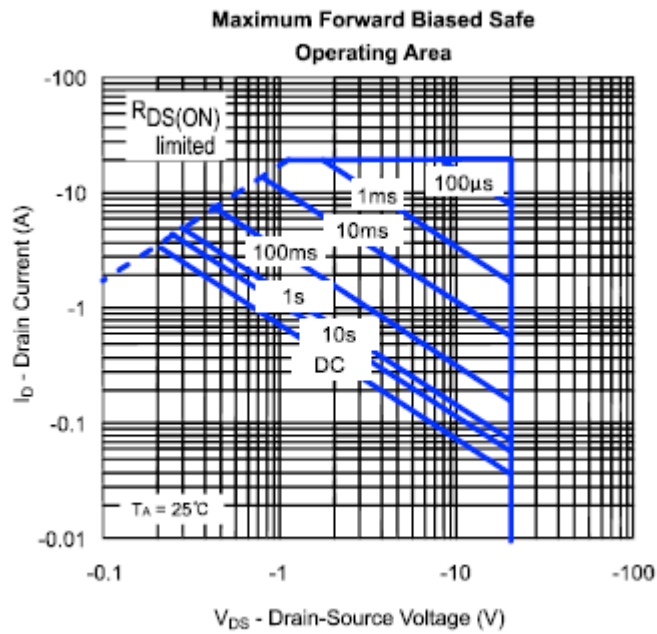
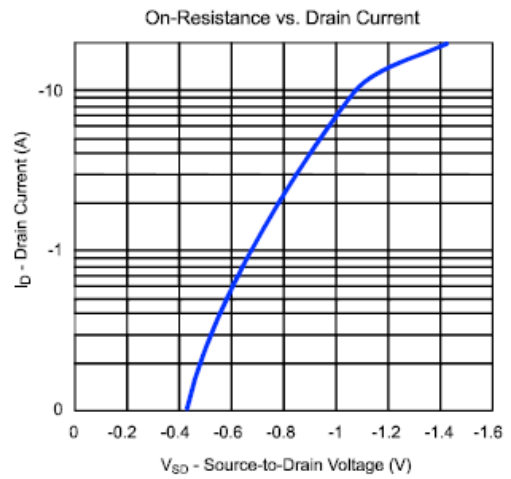
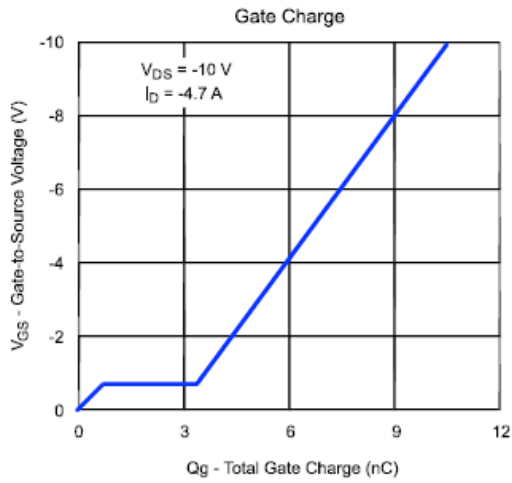
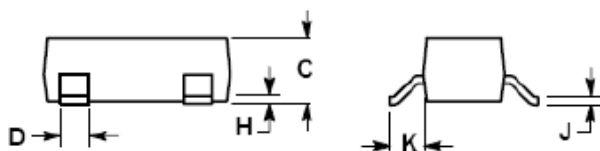
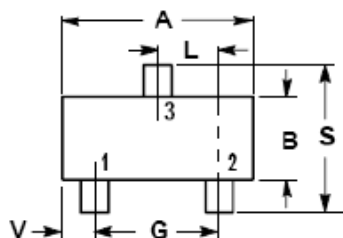


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

Figure 6: Body-Diode Characteristics (Note E)



SOT-23 Packaging Information



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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