

SE2302U
2.4A,20V N-Channel MOSFET

Revision:A

General Description

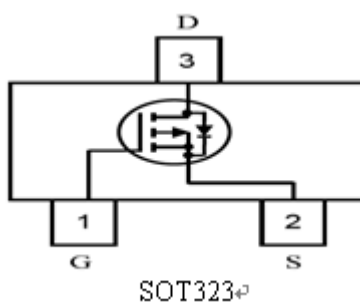
The MOSFETs from SINO-IC provide the best combination of fast switching, low on-resistance and cost-effectiveness.

Features

- V_{DS} (V) = 20V
- I_D = 2.4A
- $R_{DS(ON)} < 60m\Omega$ ($V_{GS} = 4.5V$)

Pin configurations

See Diagram below



Absolute Maximum Ratings

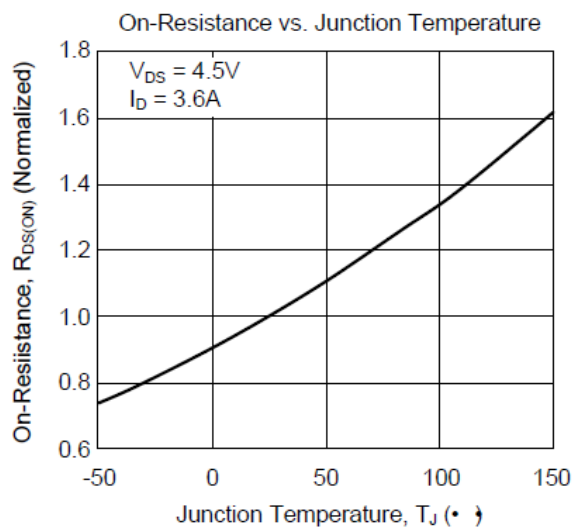
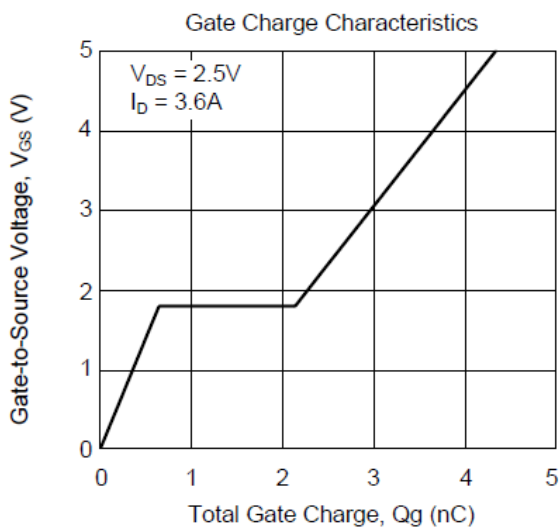
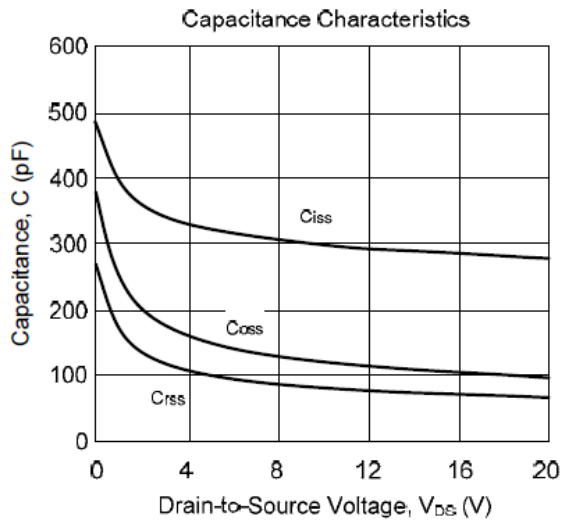
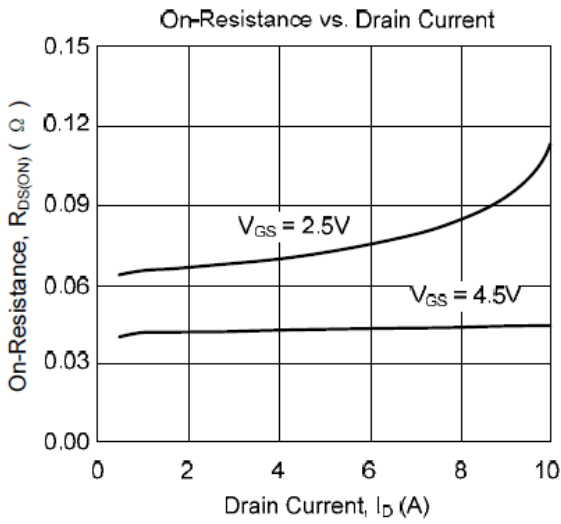
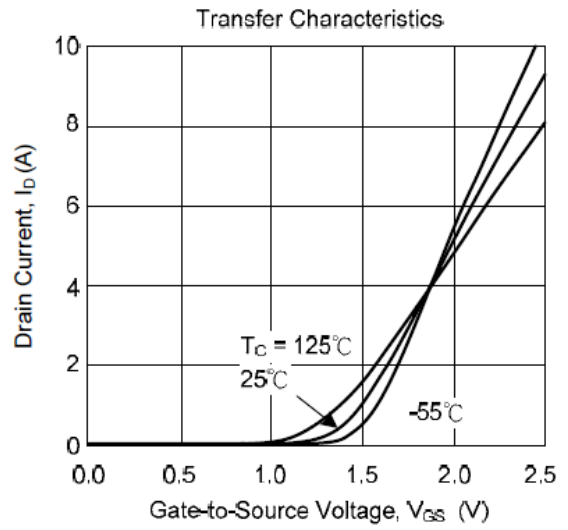
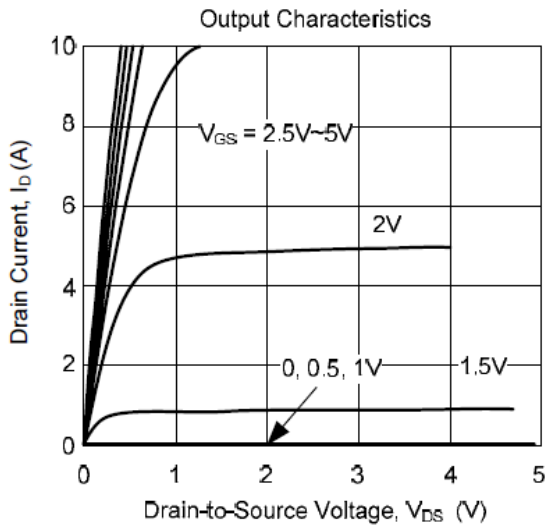
Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	V
Drain Current (Note 1)	Continuous	I_D	2.4	A
	Pulsed		9	
Total Power Dissipation		P_D	1.25	W
Operating Junction Temperature Range		T_J	-50 to 150	$^{\circ}C$

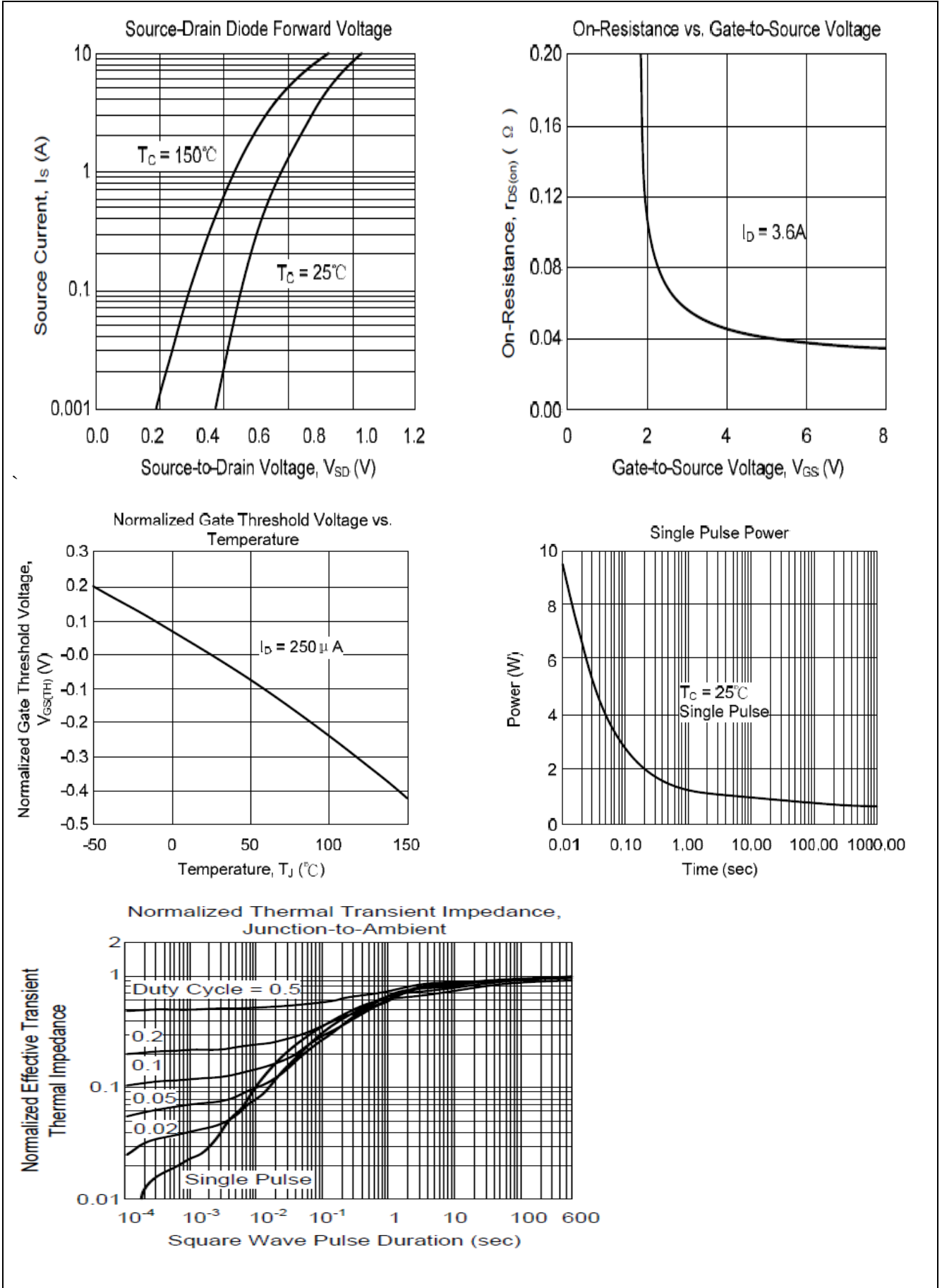
Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient θ_{JA}	$t \leq 10s$	θ_{JA}	-	100	$^{\circ}C/W$

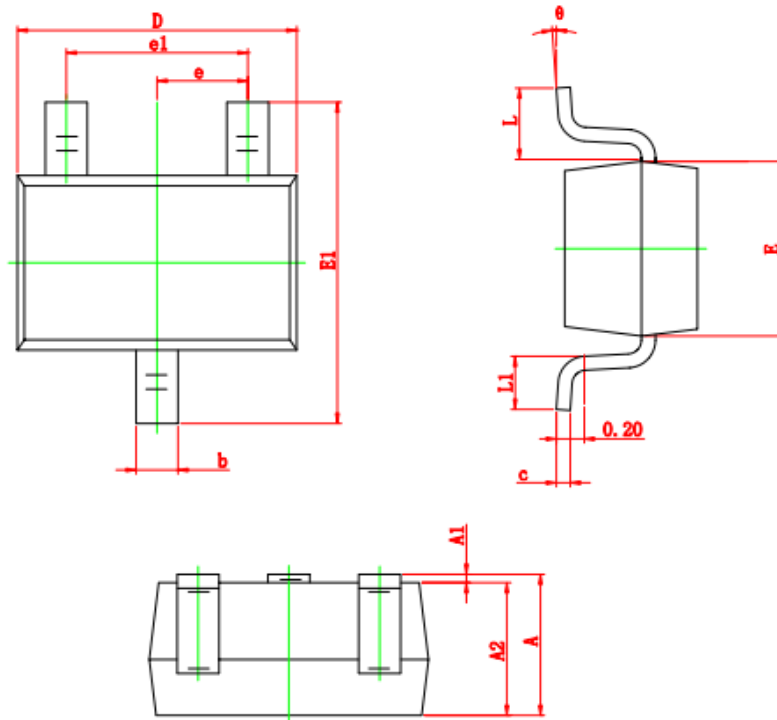
Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF/ON CHARACTERISTICS (Note 2)						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250 μ A, V _{GS} =0 V	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20 V, V _{GS} =0 V			1	μ A
I _{GSS}	Gate-Body leakage current	V _{DS} =0 V, V _{GS} =±8 V			100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} I _D =250 μ A	0.6	-	1.2	V
R _{DS(on)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =2.8A	-	43	60	mΩ
		V _{GS} =2.5V, I _D =2.0A		52	115	mΩ
		V _{GS} =1.8V, I _D =2.0A		80	130	mΩ
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, f=1MHz		450		pF
C _{oss}	Output Capacitance			70		pF
C _{rss}	Reverse Transfer Capacitance			43		pF
T _{ON}	Turn-On Time	V _{DS} =10V, I _D = 1A, V _{GS} =4.5 V, R _{GEN} =6 Ω	-	7	15	ns
T _{OFF}	Turn-Off Time		-	16	60	ns
T _r	Turn-on Rise Time		-	55	80	ns
T _f	Turn-on Fall Time		-	20	25	ns
Q _{g(10)}	Total Gate Charge	V _{DS} =10V, I _D =3.6A, V _{GS} =4.5V		5.2	10	nC
Q _{gs}	Gate-Source Charge			0.65	.	nC
Q _{gd}	Gate-Drain Charge			1.5		nC
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0 V, I _S =1.0 A		0.76	1.2	V
I _S	Maximum Continuous Drain-Source Diode Forward Current				1.6	A

Typical Characteristics





Packaging Information(SOT323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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