P-Channel 20V(D-S) MOSFET

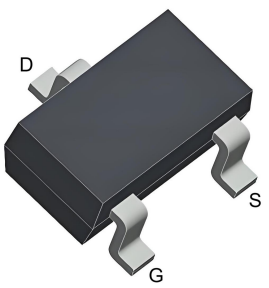
Product summary		
V_{DS}	-20	V
$R_{DS(ON)}$(at V_{GS}=4.5V)Typ.	99	mΩ
$R_{DS(ON)}$(at V_{GS}=2.5V) Typ.	138	mΩ
I_D(TA=25℃)	-1.5	A

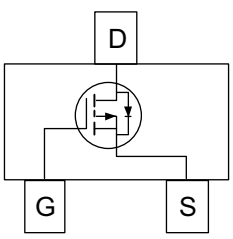
Features
- Small package SOT-23
- Low Gate Charge
- RoHS Compliant

Applications
- Load Switch
- Power Management

Pin Configuration

SOT-23





Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG2301B	21B	7'	8mm	3000pcs

Absolute Maximum Ratings (at TA=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		-20	V
V_{GS}	Gate-Source Voltage		±10	V
I_D	Continuous Drain Current at V_{GS}=10V [A]	T_A=25℃	-1.5	A
		T_A=70℃	-1.1	A
I_{DM}	Pulse Drain Current Tested [B]		-4	A
P_D	Power Dissipation	T_A=25℃	0.7	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to ambient [A]	179	℃/W

Electrical Characteristics (at TJ =25℃ Unless Otherwise Noted)

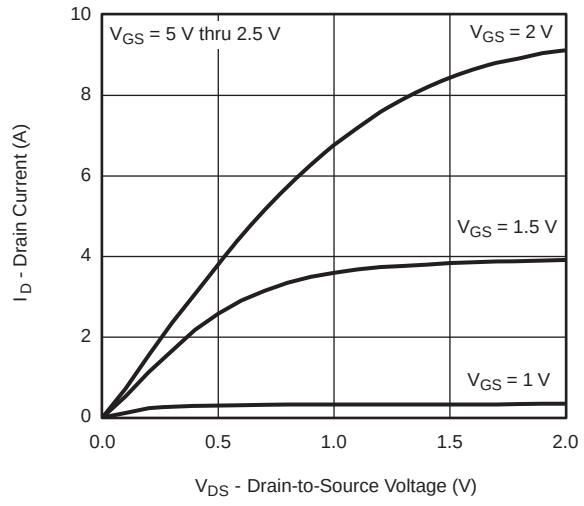
Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=-250uA	-20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-16V,V_{GS}=0V	--	--	-1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±12V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	-0.5	-0.7	-1.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [B]	V_{GS}=-4.5V,I_D=-0.5A	--	99	145	mΩ
		V_{GS}=-2.5V,I_D=-0.5A	--	138	195	mΩ
V_{SD}	Forward Voltage	I_{SD}=-0.8A,V_{GS}=0V	--	-0.7	-1.3	V
Dynamic Parameters [C]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=-10V f=1MHZ	--	405	--	pF
C_{oss}	Output Capacitance		--	75	--	pF
C_{rss}	Reverse Transfer Capacitance		--	55	--	pF
Q_g	Total Gate Charge	V_{DS}=-10V,I_D=-1.5A V_{GS}=-4.5V	--	5.8	--	nC
Q_{gs}	Gate-Source Charge		--	0.8	--	nC
Q_{gd}	Gate-Drain Charge		--	1.4	--	nC
Switching Parameters						
$t_{D(on)}$	Turn-on Delay Time	V_{DS}=-10V,I_D=-1A R_L=10Ω,R_G=1Ω, V_{GS}=-4.5V	--	12	--	nS
t_r	Turn-on Rise Time		--	33	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	30	--	nS
t_f	Turn-off Fall Time		--	11	--	nS

A. The data tested by surface mounted on a 1 inch x 1 inch FR-4 board with 2OZ copper.

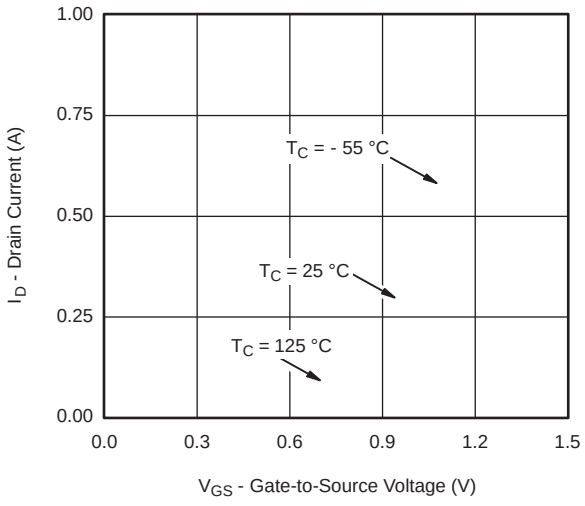
B. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

C. Guaranteed by design, not subject to production testing.

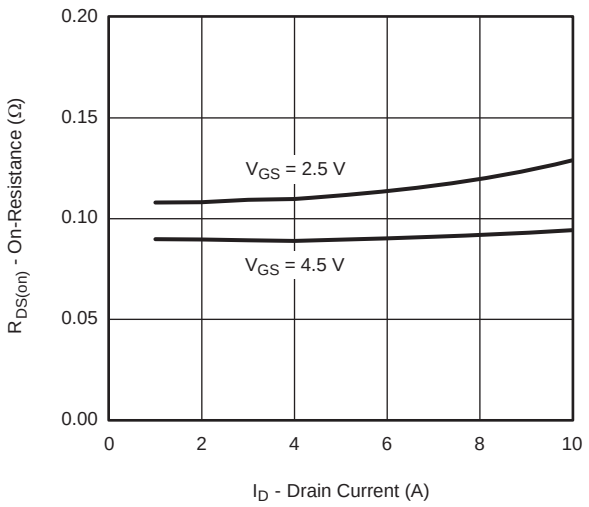
Typical Characteristics



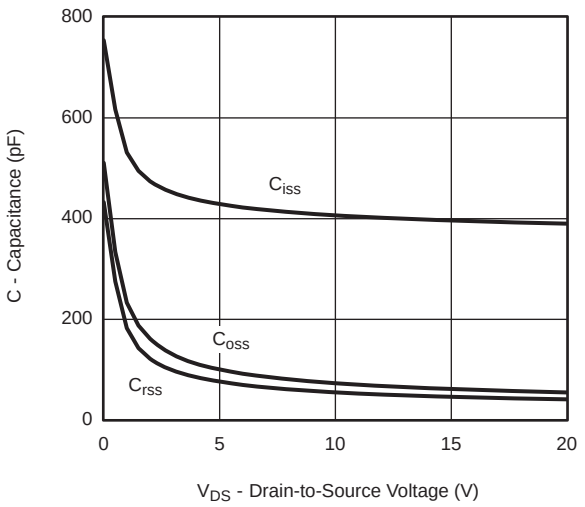
Output Characteristics



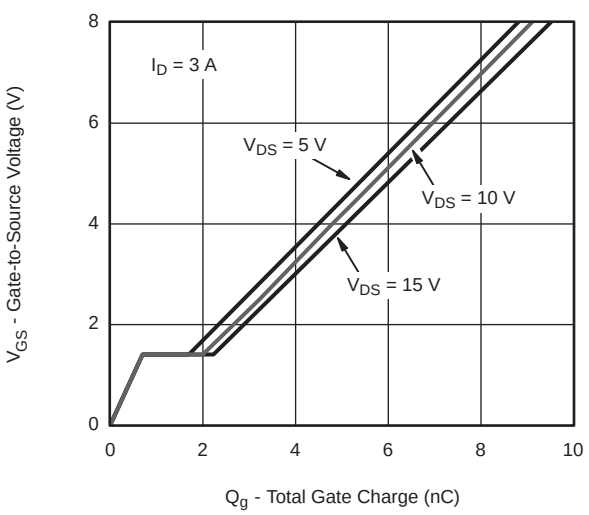
Transfer Characteristics



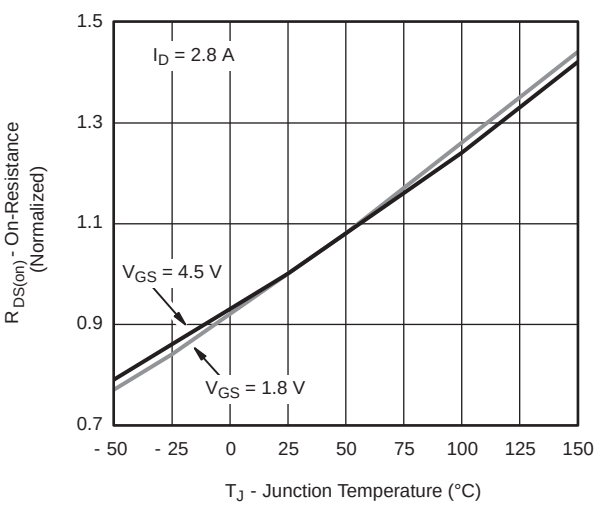
On-Resistance vs. Drain Current and Gate Voltage



Capacitance

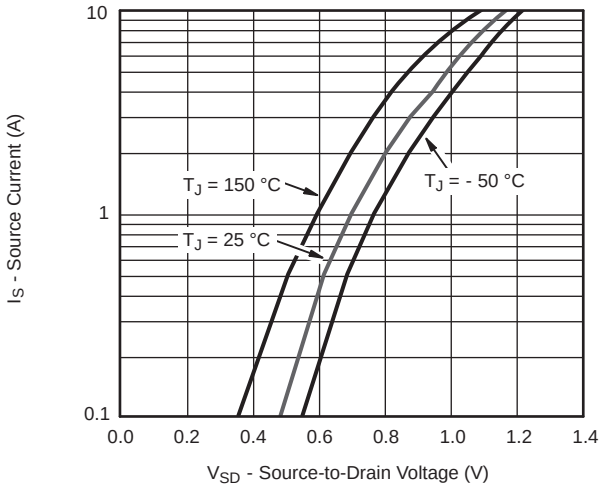


Gate Charge

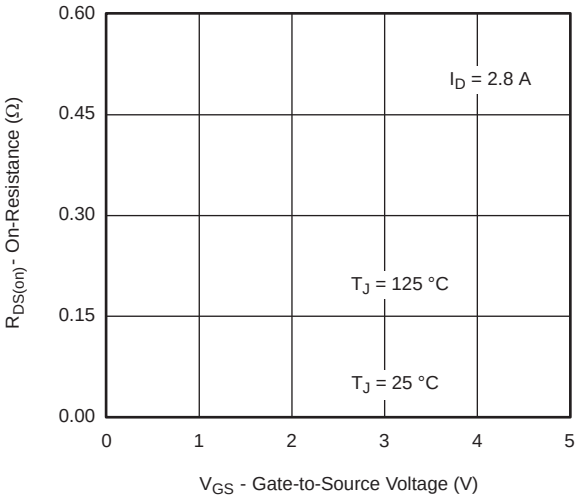


On-Resistance vs. Junction Temperature

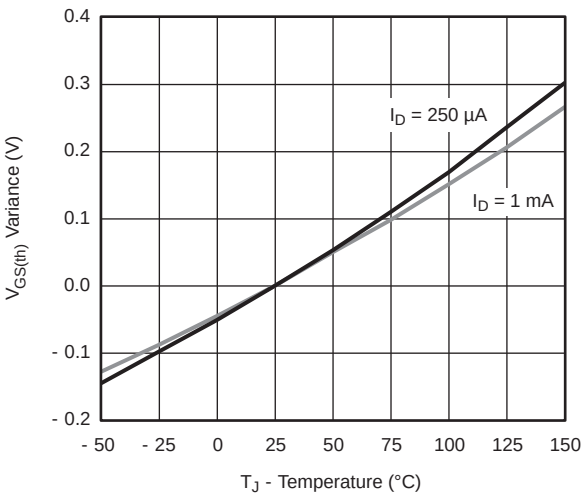
Typical Characteristics



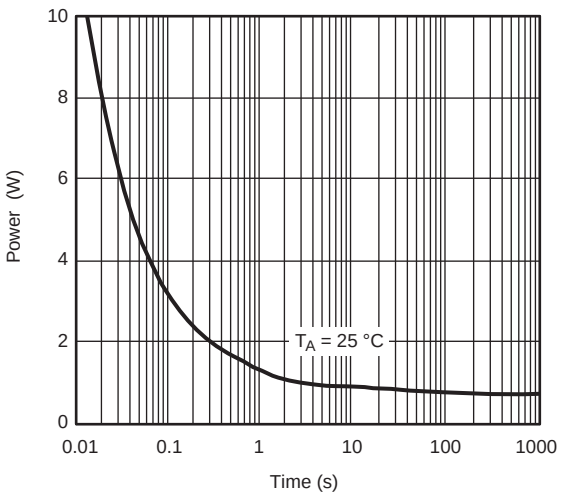
Source-Drain Diode Forward Voltage



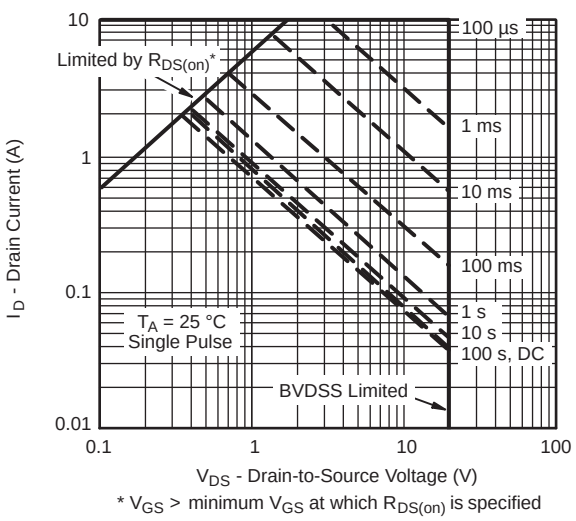
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

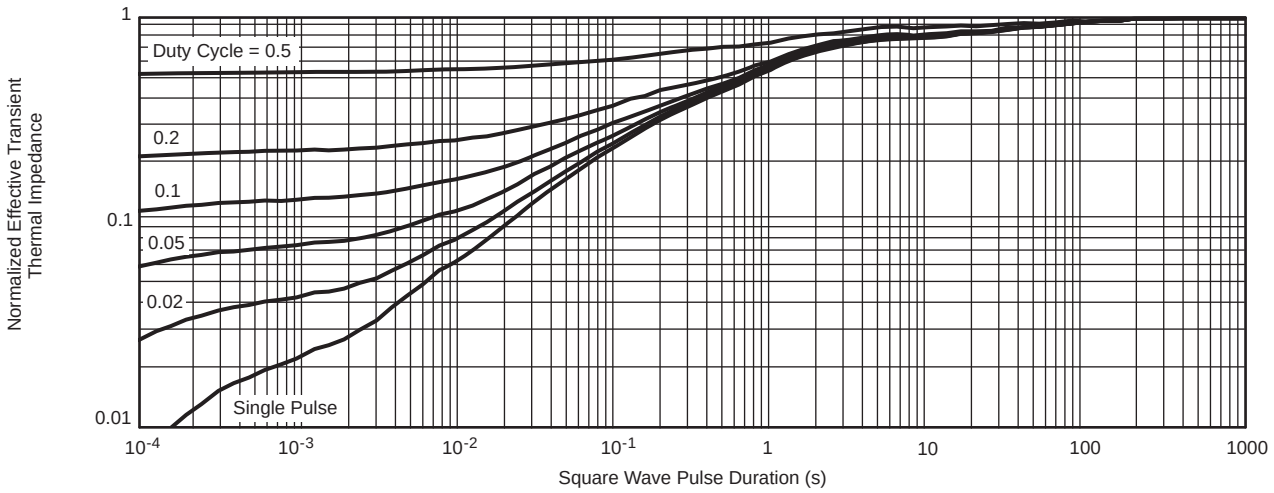


Single Pulse Power

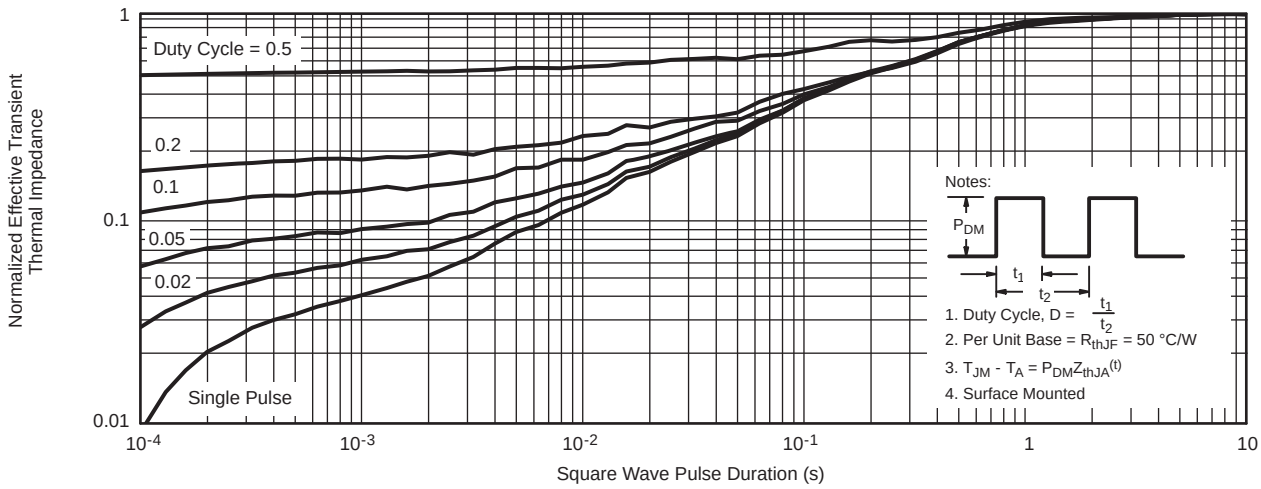


* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Typical Characteristics

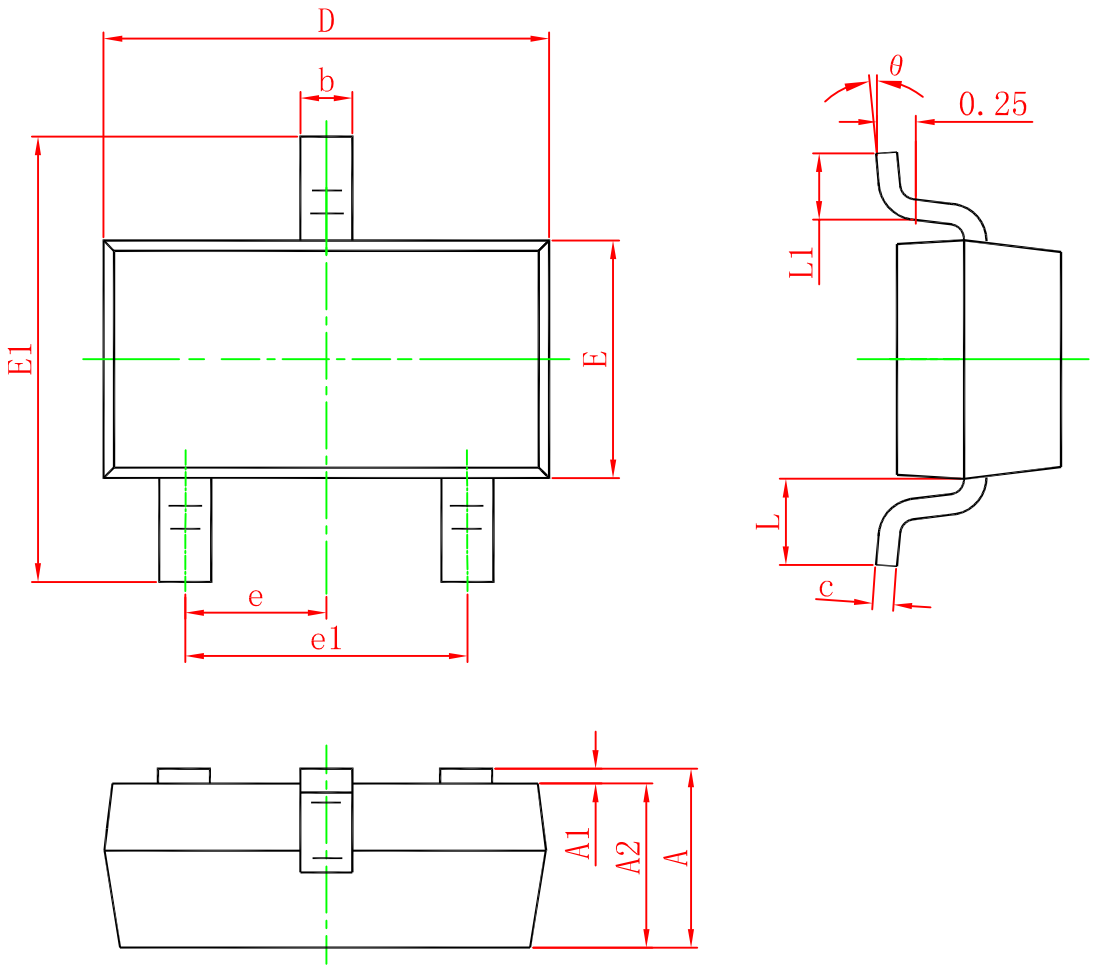


Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°