N-Channel 30V(D-S) MOSFET

Product summary		
V_{DS}	30	V
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	500	mΩ
$R_{DS(ON)}$(at V_{GS}=2.5V) Typ.	700	mΩ
I_D(T_A=25℃)	0.5	A

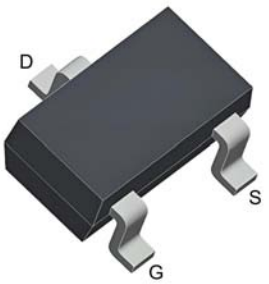
Features

- Operated at Low Logic Level Gate Drive
- ESD protection up to 2 kV
- Advanced Trench Technology

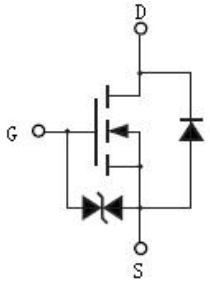
Applications

- Load Switching
- Logic Level Shift

Pin Configuration



SOT-523



Packing Information

Device	Package	Reel Size	Tape Width	Quantity
ECDH3019	SOT-523	7″	8mm	3000pcs

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

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current at V_{GS}=4.5V [A]	T_A=25℃	0.5	A
		T_A=70℃	0.4	A
I_{DM}	Pulse Drain Current Tested [B]		2.4	A
P_D	Power Dissipation [A]	T_A=25℃	0.2	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]	625	℃/W

Electrical Characteristics (at T_J =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	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±20V	--	--	±10	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.9	1.2	1.7	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [B]	V_{GS}=10V,I_D=0.4A	--	500	700	mΩ
		V_{GS}=4.5V,I_D=0.2A	--	700	900	mΩ
V_{SD}	Forward Voltage	I_{SD}=0.5A,V_{GS}=0V	--	--	1.2	V
Dynamic Parameters [C]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=15V f=1MHZ	--	18	--	pF
C_{oss}	Output Capacitance		--	7	--	pF
C_{rss}	Reverse Transfer Capacitance		--	3	--	pF
Q_g	Total Gate Charge	V_{DS}=10V,I_D=0.3A V_{GS}=0 to 10V	--	1.7	--	nC
Q_{gs}	Gate-Source Charge		--	0.5	--	nC
Q_{gd}	Gate-Drain Charge		--	0.7	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=10V I_D=0.2A, R_{GEN}=10Ω, V_{GS}=10V	--	1.7	--	nS
t_r	Turn-on Rise Time		--	10	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	10	--	nS
t_f	Turn-off Fall Time		--	22	--	nS

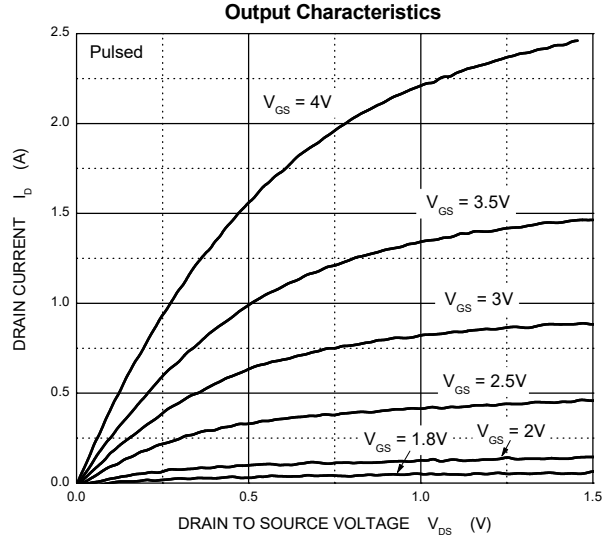
A. The data tested by surface mounted on a 1 inch x 1 inch FR-4 board with 2OZ copper.

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

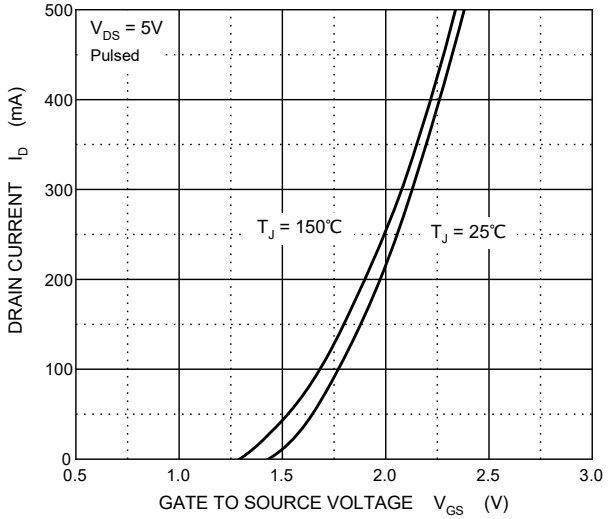
C. Guaranteed by design, not subject to production testing.

Typical Characteristics

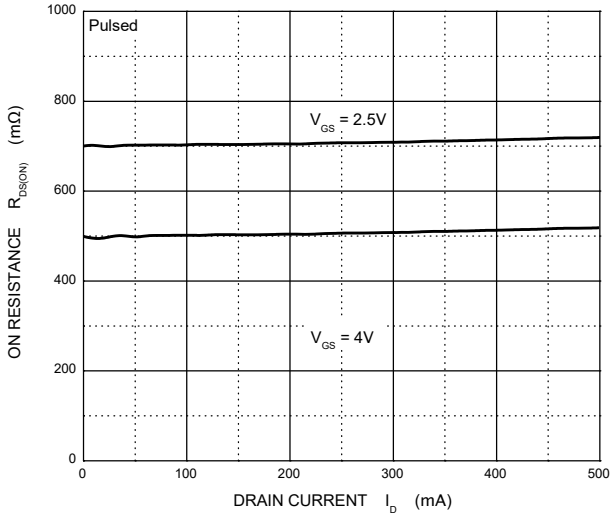
Output Characteristics



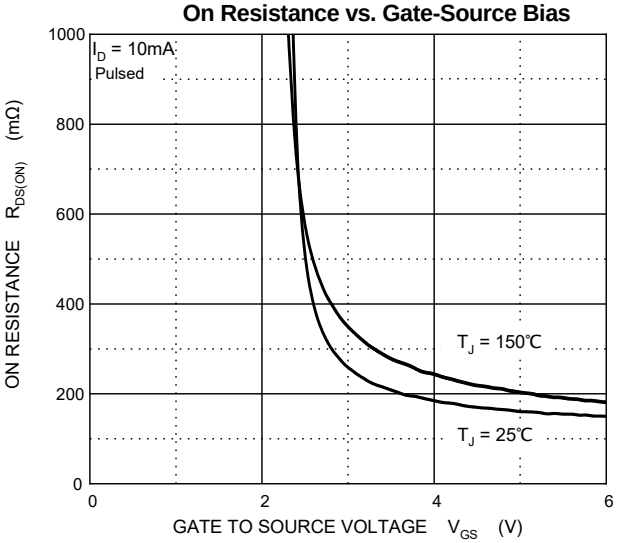
Transfer Characteristics



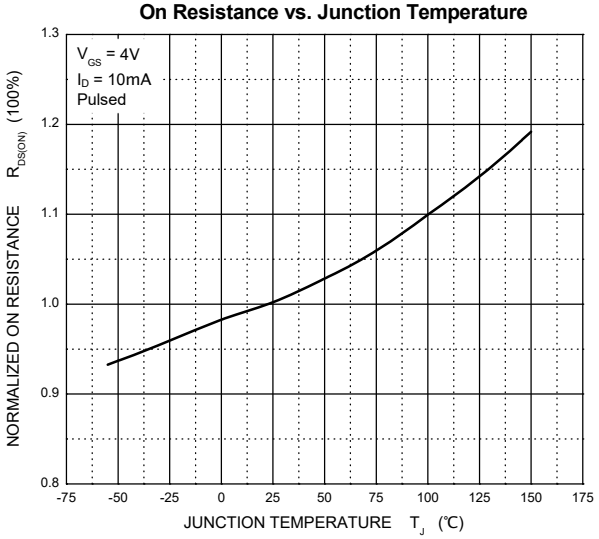
On Resistance vs. Drain Current



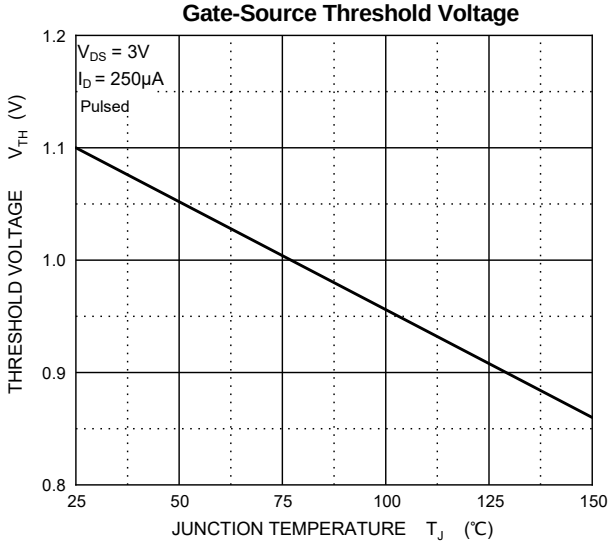
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

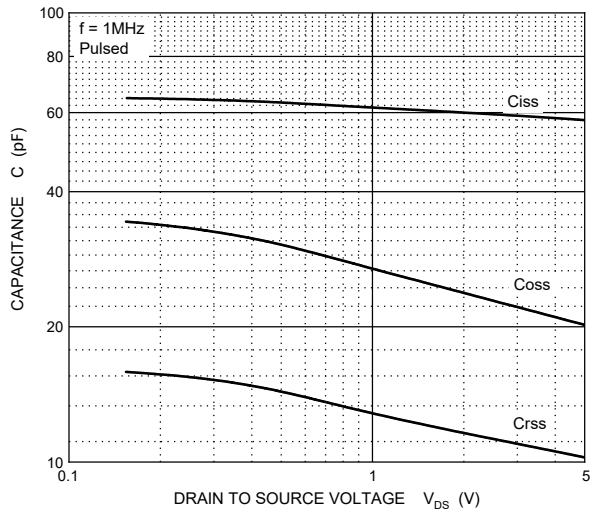


Gate-Source Threshold Voltage

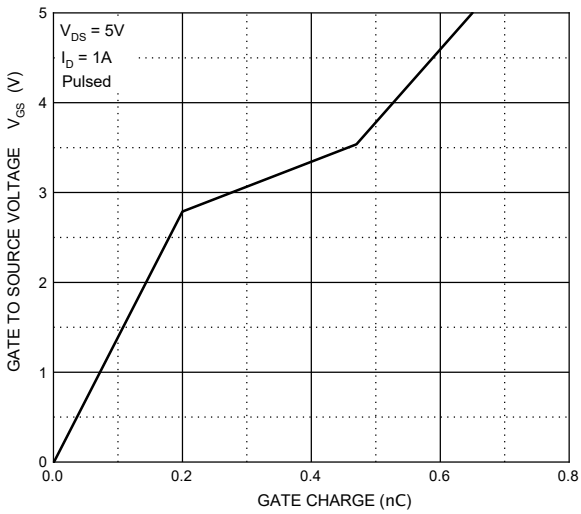


Typical Characteristics

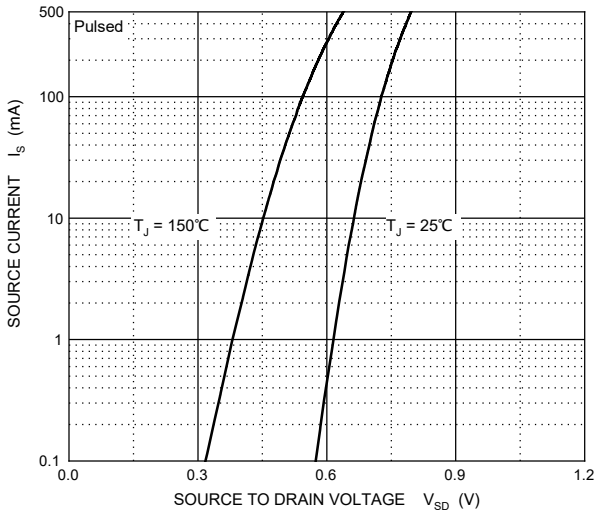
Typical Capacitances



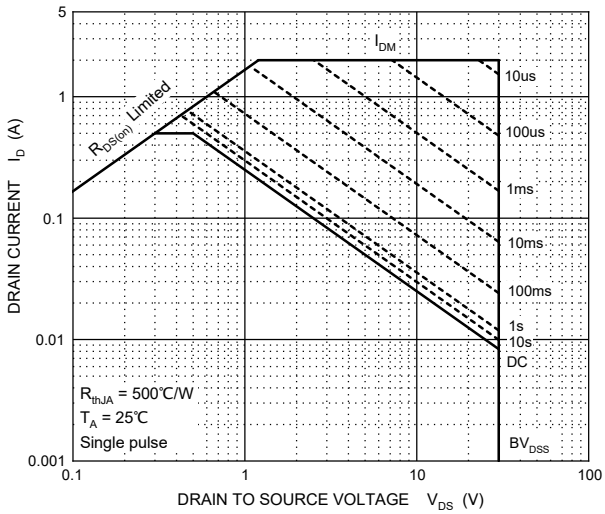
Gate Charge



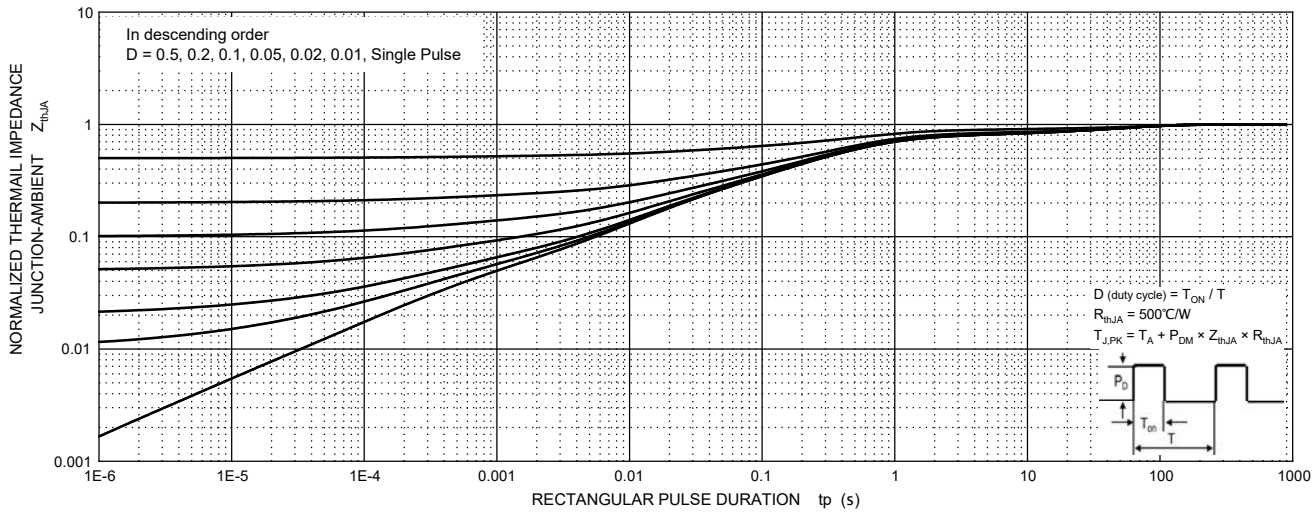
Source-Drain Diode Forward Characteristics



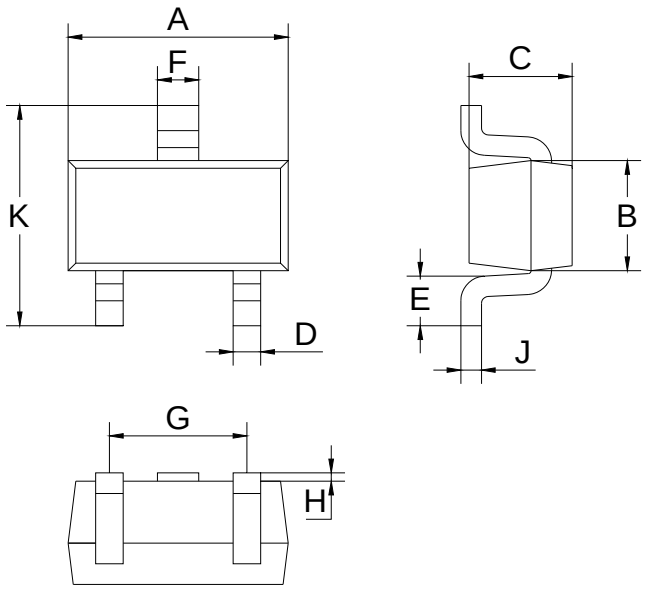
Maximum Safe Operating Area



Transient Thermal Impedance, Junction-Ambient



SOT-523 Package Information



SOT-523(mm)		
Dim	Min	Max
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75

Recommended Pad outline