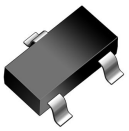
Si2319

Halogen-Free Product

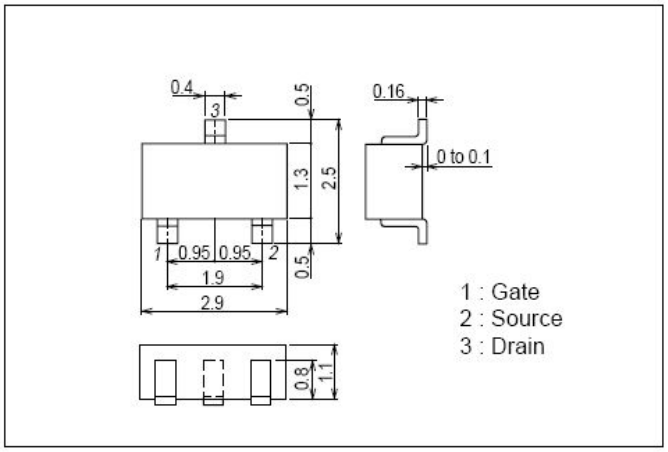
Features

- Low On resistance.
- −4.5V drive.
- RoHS compliant.



Package Dimensions

unit : mm
SOT-23L



Specifications

Absolute Maximum Ratings at T_a=25^{0}C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-40	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		-4.4	A
Drain Current (Pulse)	I_{DP}	PW≤10uS, duty cycle≤1%	-20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm^2×0.8mm) 1unit	0.25	W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm^2×0.8mm)	0.3	W
Channel Temperature	T_{ch}		150	^{0}C
Storage Temperature	T_{stg}		-55~+150	^{0}C

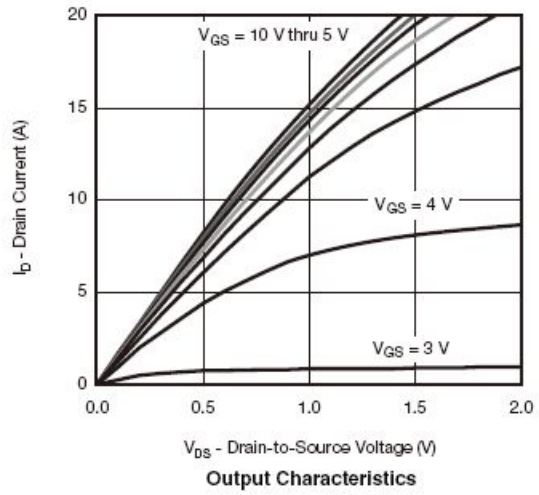
Electrical Characteristics at T_a=25^{0}C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=-250uA, V_{GS}=0V	-40	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V	-	-	-1	uA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250uA	-1.2	-2.0	-2.5	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	I_D=-3.1A, V_{GS}=-10V	-	64	77	mΩ
	$R_{DS(ON)}$	I_D=-2.6A, V_{GS}=-4.5V	-	90	108	mΩ
Input Capacitance	C_{iss}	V_{DS}=-20V, V_{GS}=0V, f=1MHz	-	595	-	pF
Output Capacitance	C_{oss}	V_{DS}=-20V, V_{GS}=0V, f=1MHz	-	76	-	pF
Reverse Transfer Capacitance	C_{rss}	V_{DS}=-20V, V_{GS}=0V, f=1MHz	-	61	-	pF

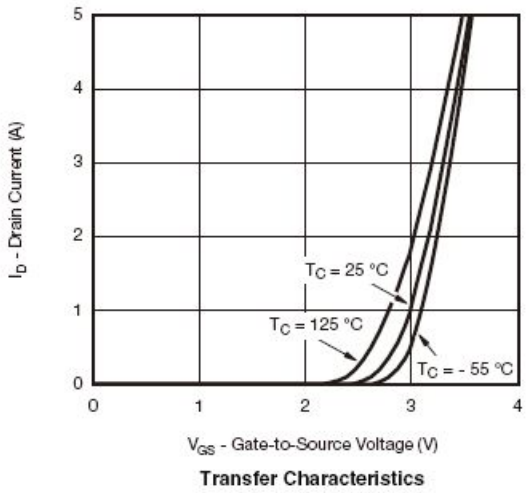
Electrical Characteristics at T_a=25^{0}C (Continued)

Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-20V, I_D=-2.5A, R_L=8Ω, R_{GEN}=1Ω, V_{GEN}=-4.5V	-	40	60	nS
Rise Time	t_r		-	27	41	nS
Turn-off Delay Time	$t_{d(off)}$		-	18	27	nS
Fall Time	t_f		-	10	20	nS
Total Gate Charge	Q_g	V_{DS}=-20V, V_{GS}=-4.5V, I_D=-3.1A	-	7	11	nC
Gate-to-Source Charge	Q_{gs}		-	2.5	-	nC
Gate-to-Drain "Miller" Charge	Q_{gd}		-	3.2	-	nC
Diode Forward Voltage	V_{SD}	I_S=-2.5A, V_{GS}=0V	-	-0.8	-1.2	V

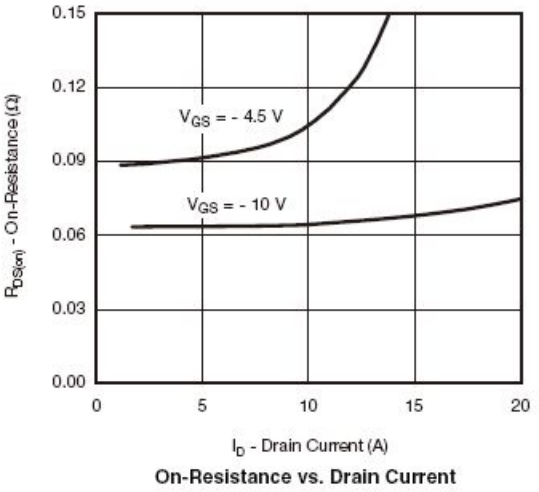
Typical Characteristics at T_a=25^{0}C



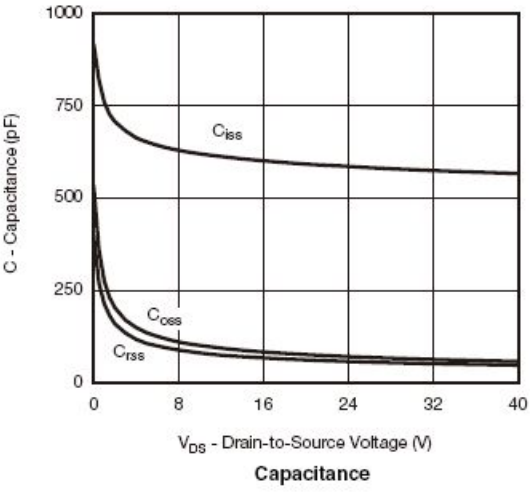
Output Characteristics



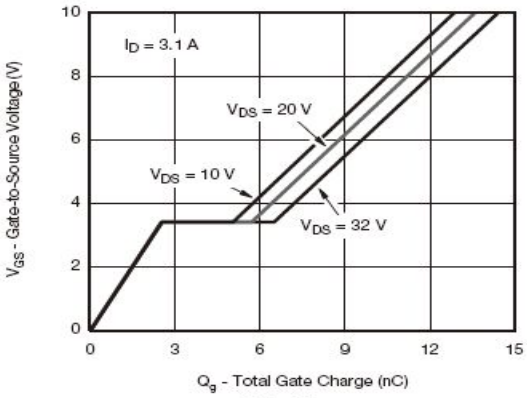
Transfer Characteristics



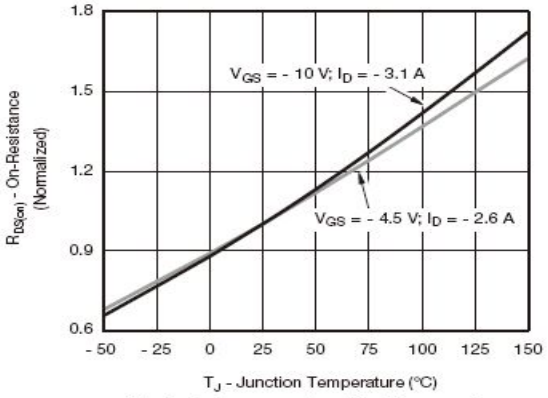
On-Resistance vs. Drain Current



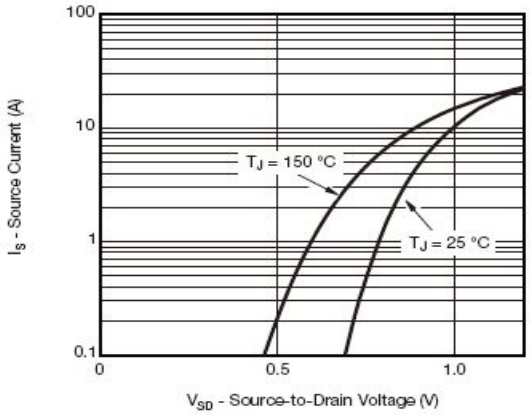
Capacitance



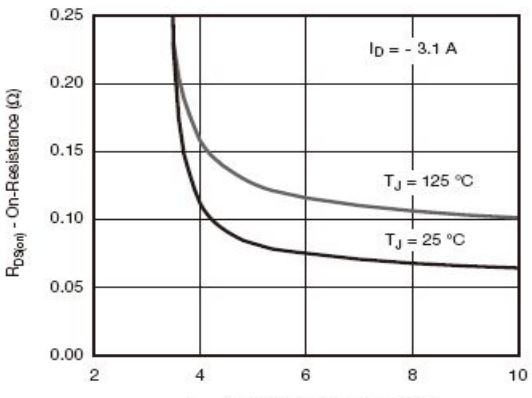
Gate Charge



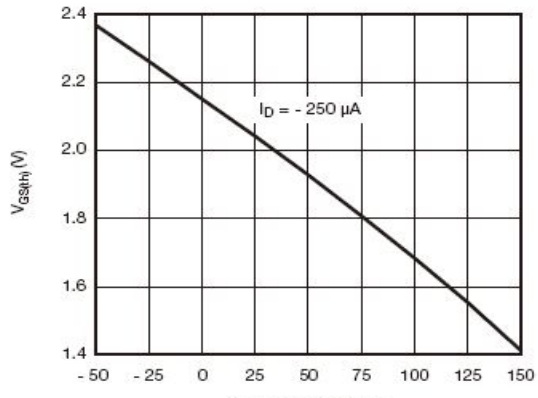
On-Resistance vs. Junction Temperature



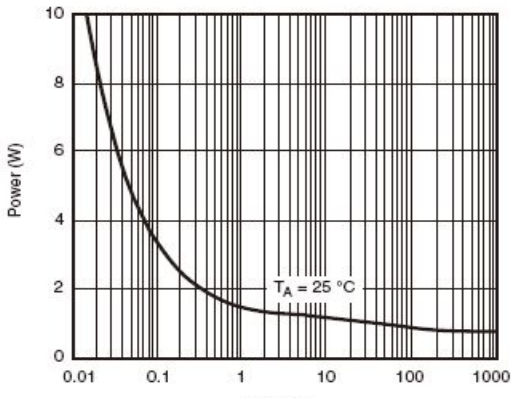
Source-Drain Diode Forward Voltage



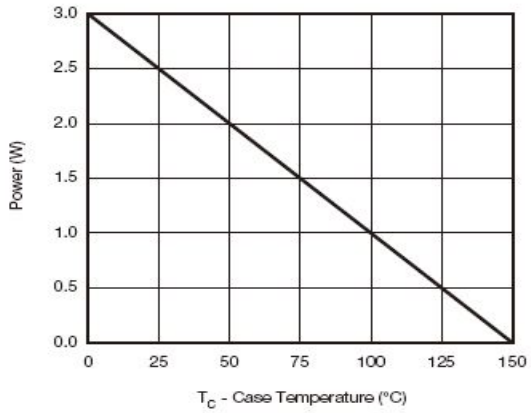
On-Resistance vs. Gate-to-Source Voltage



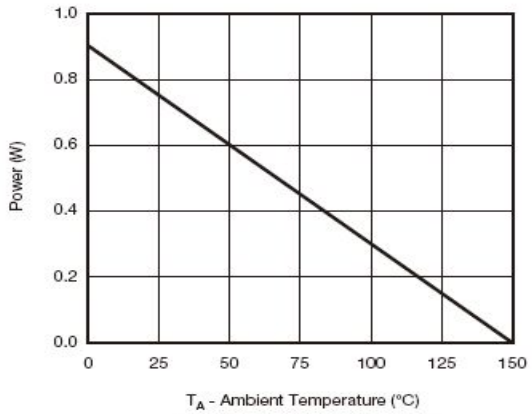
Threshold Voltage



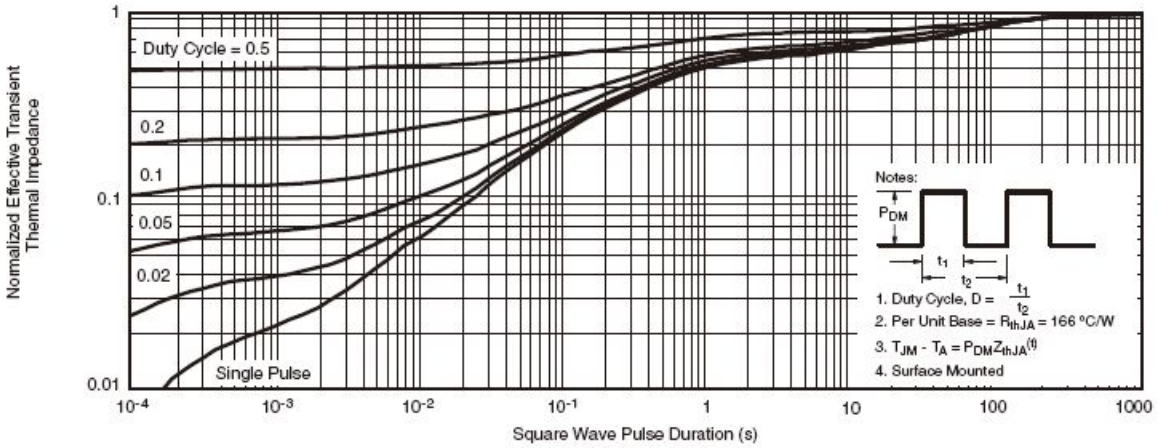
Single Pulse Power (Junction-to-Ambient)



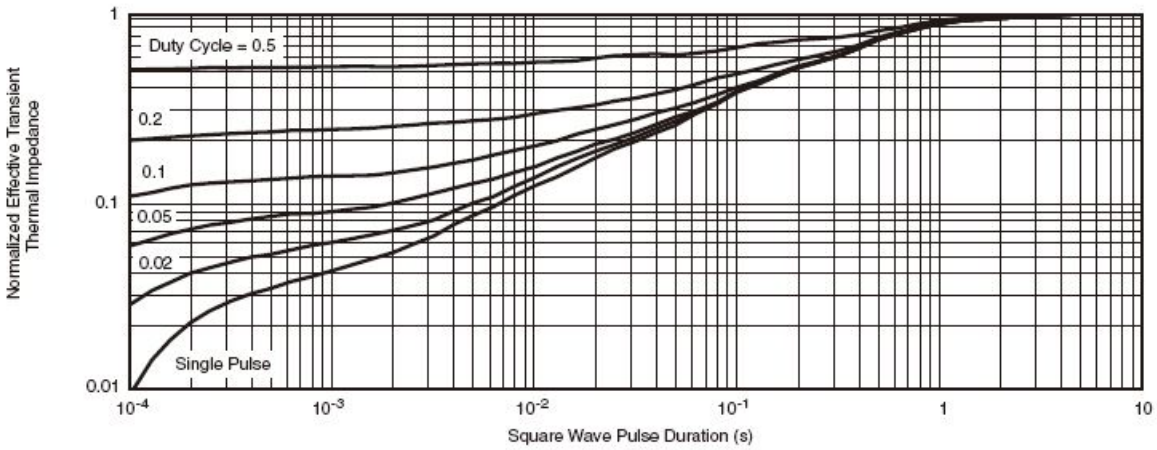
Power, Junction-to-Foot



Power, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot