

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-100V	250mΩ@-10V	-4A
	300mΩ@-4.5V	

Feature

- High density cell design for low Rdson
- Fast Switching speed
- Low Gate Charge
- Suffix "-Q1" for AEC-Q101

Application

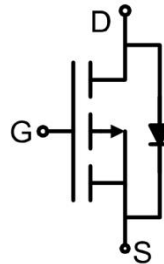
- DC-DC converter
- Power switching application
- Hard switched and high frequency circuits

Package

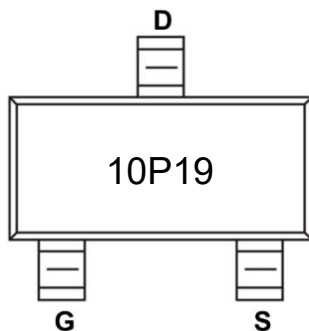


SOT-23-3L

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-4	A
Pulsed Drain Current ¹⁾	I _{DM}	-16	A
Power Dissipation	P _D	1.5	W
Thermal Resistance from Junction to Ambient	R _{θJA}	83	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

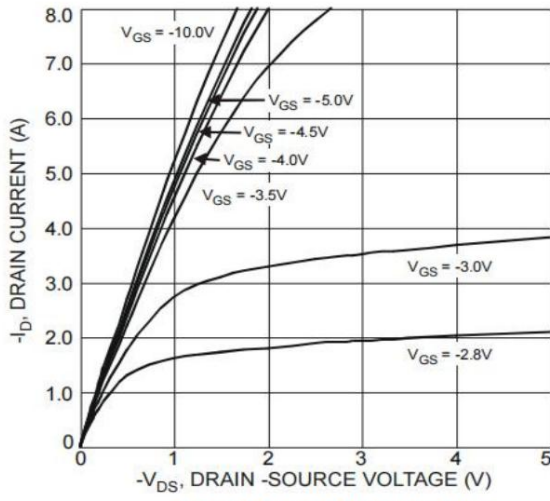
Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -100V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage ²⁾	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -0.5A		190	250	mΩ
		V _{GS} = -4.5V, I _D = -0.4A		210	300	
Dynamic characteristics³⁾						
Input Capacitance	C _{iss}	V _{DS} = -50V, V _{GS} = 0V, f = 1MHz		1239		pF
Output Capacitance	C _{oss}			42		
Reverse Transfer Capacitance	C _{rss}			38		
Total Gate Charge	Q _g	V _{DS} = -60V, V _{GS} = -10V, I _D = -3.0A		17.5		nC
Gate-Source Charge	Q _{gs}			2.8		
Gate-Drain Charge	Q _{gd}			3.2		
Turn-on delay time	t _{d(on)}	V _{DD} = -50V, V _{GS} = -10V, I _D = -3.0A, R _{GEN} = 3.0Ω		9.1		nS
Turn-on rise time	t _r			14.9		
Turn-off delay time	t _{d(off)}			57.4		
Turn-off fall time	t _f			34.4		
Source-Drain Diode characteristics						
Diode Forward Current ²⁾	I _S				-4	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -1A			-1.2	V

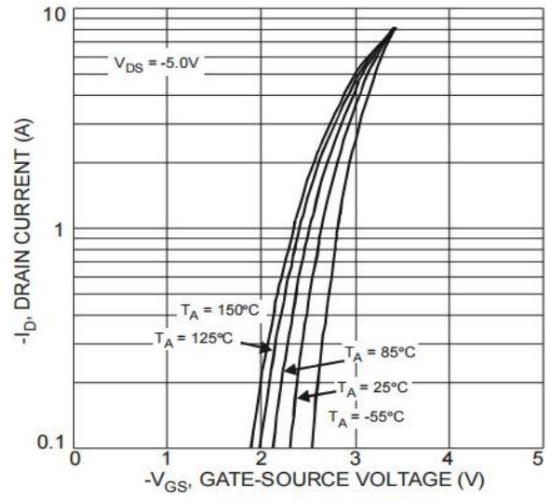
Notes:

- 1) Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 3) Guaranteed by design, not subject to production.

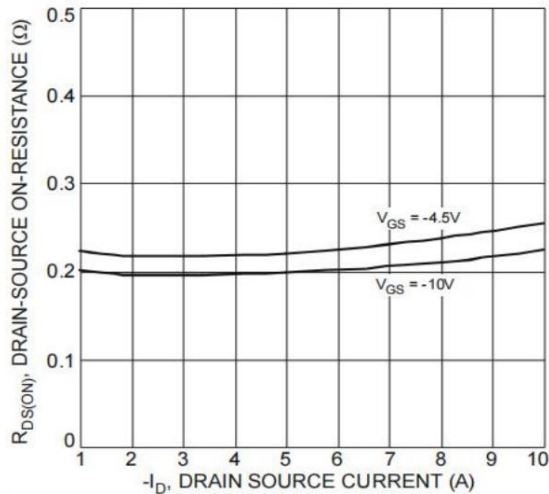
Typical Characteristics



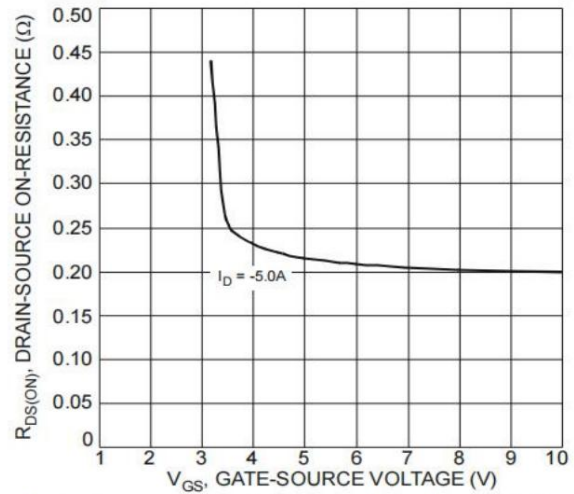
Typical Output Characteristics



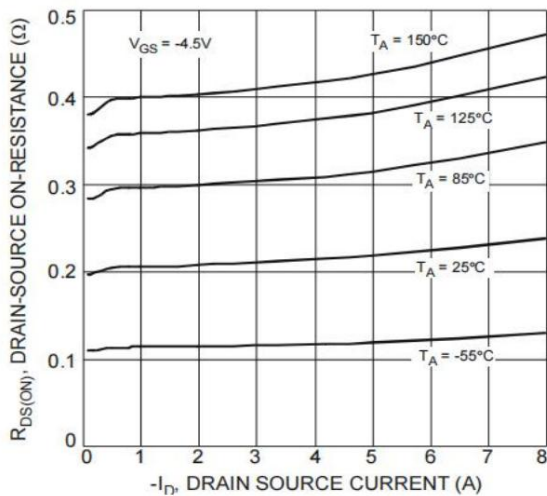
Transfer Characteristics



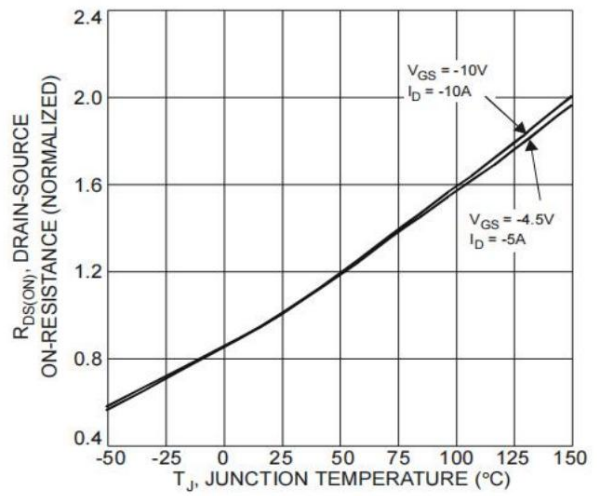
On-Resistance vs. Drain Current and Gate Voltage



Drain-Source On-Resistance vs. Gate-Source Voltage

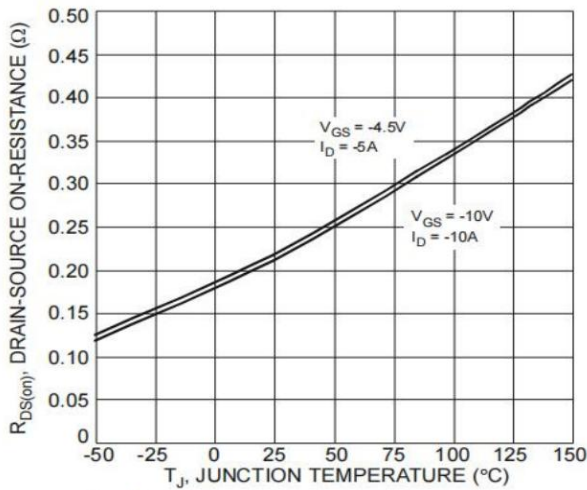


On-Resistance vs. Drain Current and Temperature

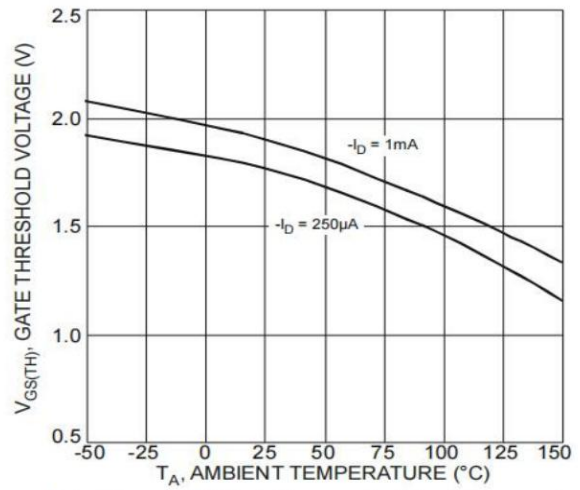


On-Resistance Variation with Temperature

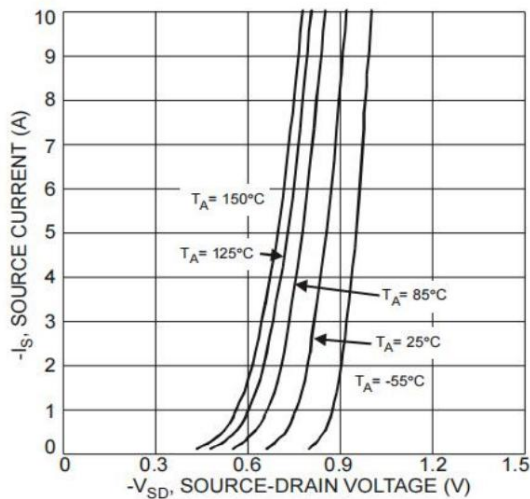
Typical Characteristics



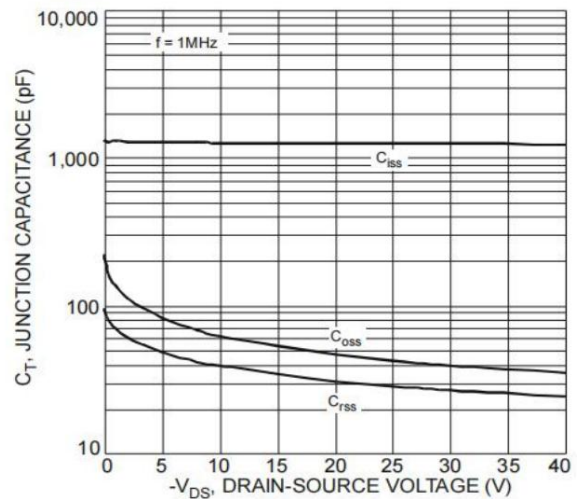
On-Resistance Variation with Temperature



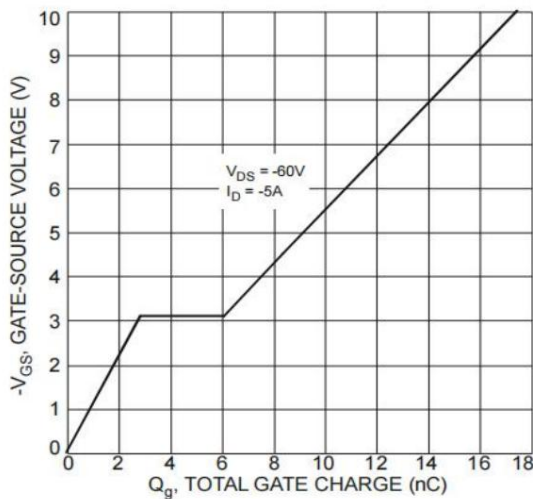
Gate Threshold Variation vs. Ambient Temperature



Diode Forward Voltage vs. Current

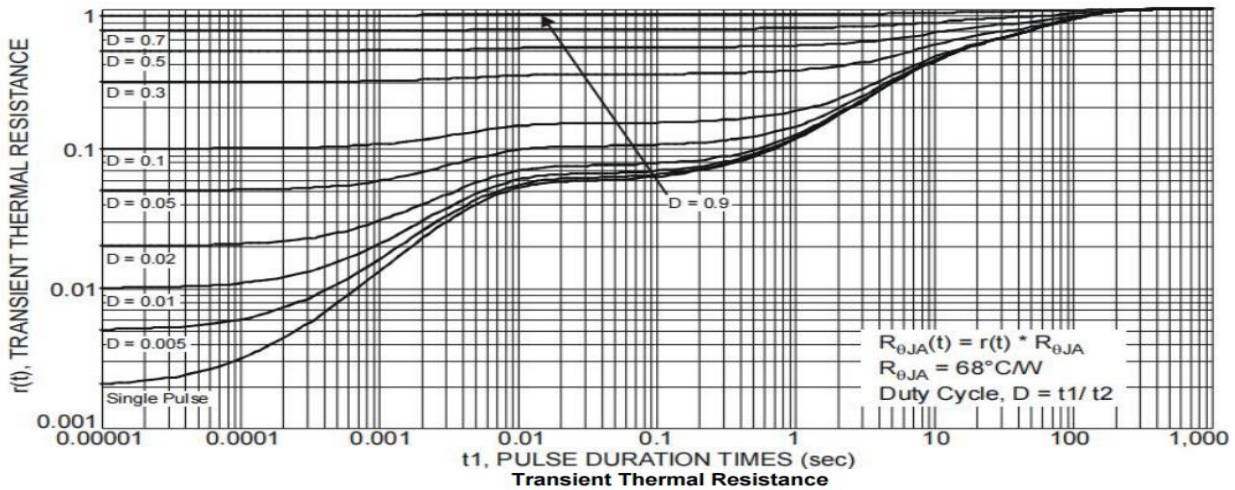
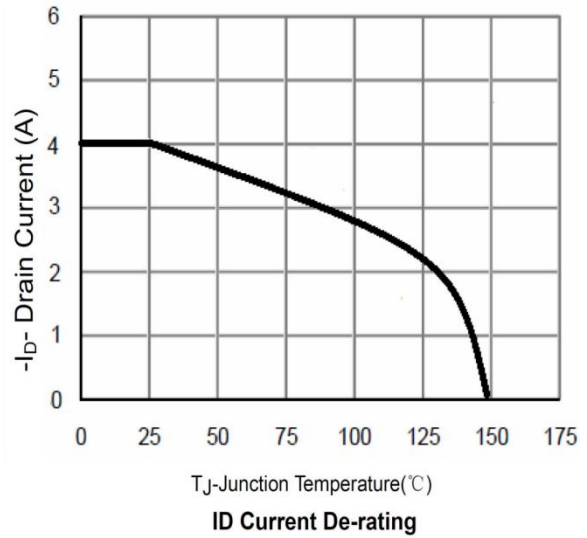
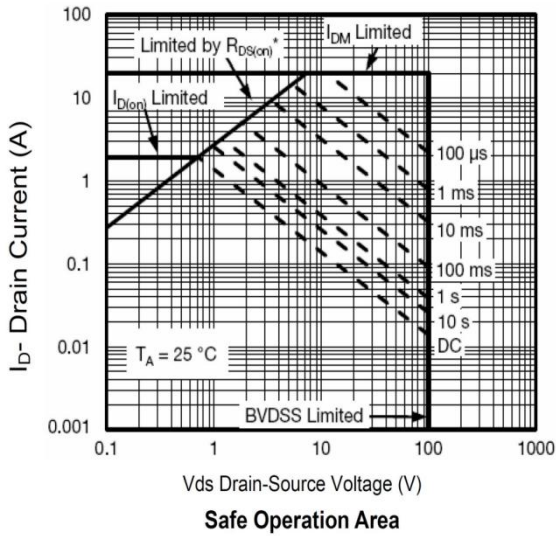


Typical Junction Capacitance

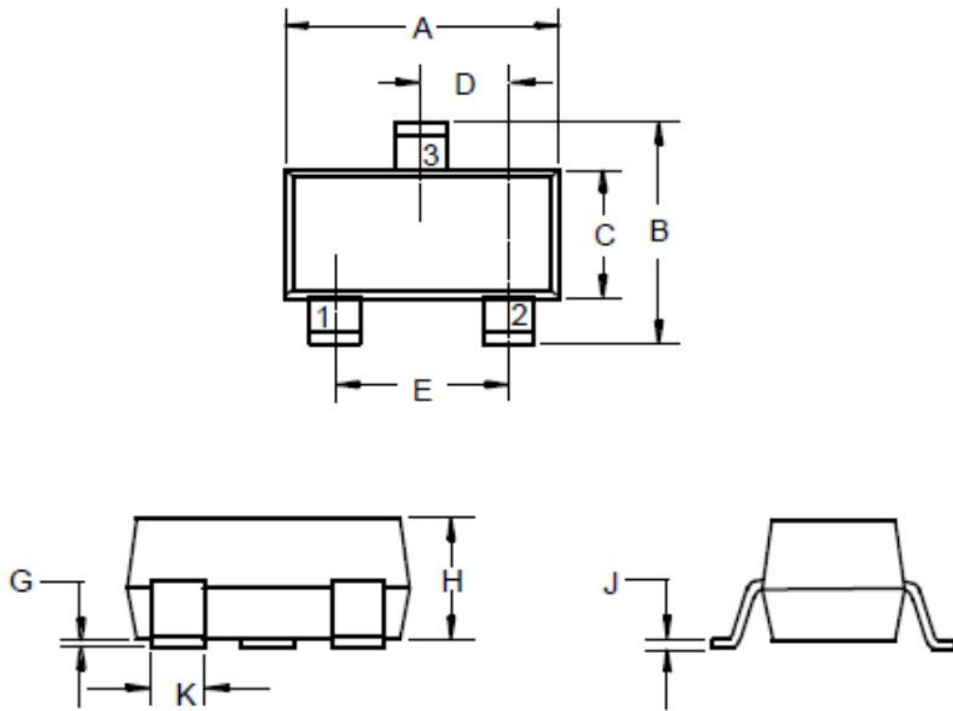


Gate-Charge Characteristics

Typical Characteristics



SOT-23-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.820	3.020	0.111	0.119
B	2.650	2.950	0.104	0.116
C	1.500	1.700	0.059	0.067
D	0.865	1.015	0.034	0.040
E	1.800	2.000	0.071	0.079
G	0.000	0.100	0.000	0.004
H	1.050	1.250	0.041	0.049
J	0.100	0.200	0.004	0.008
K	0.300	0.500	0.012	0.020