

-20V, 115mΩ, -2.3A, P-Channel MOSFET

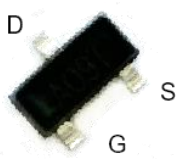
1.Features

- ◆ Advanced Trench Technology
- ◆ Surface mount package

2.Applications

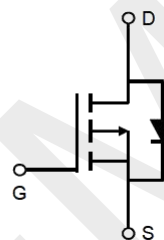
- ◆ Power Management
- ◆ Load Switching

V_{DS}	$R_{DS(on)}$ Typ.	I_D
-20V	115mΩ @ 4.5V	-2.3A
	141mΩ @ 2.5V	



SOT23

Pin Description



Schematic Diagram

3.Absolute Max Ratings at Ta=25°C (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	-20	V
Gate to Source Voltage	V_{GSS}	±10	V
Drain Current (DC)	I_D	-2.3	A
Drain Current (Pulse), PW≤300μs	I_{DP}	-9	A
Total Dissipation	P_D	1	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

4.Thermal Resistance Ratings (Note 2)

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125	°C/W

Note 2: When mounted on 1 inch square copper board $t \leq 10$ sec The value in any given application depends on the user's specific board design.

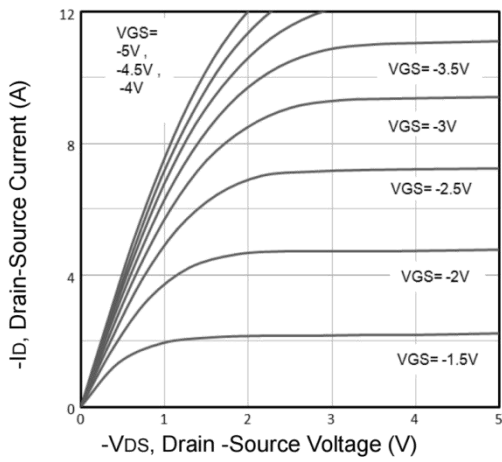
5. Electrical Characteristics at Ta=25°C (Note 3)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-20			V	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA	
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 100	nA	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-0.4	-0.6	-1.0	V	
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = -2A, V_{GS} = -4.5V$		115	135	m Ω	
		$I_D = -1A, V_{GS} = -2.5V$		141	156	m Ω	
Input Capacitance	C_{iss}	$V_{GS}=0V,$ $V_{DS}=-10V,$ Frequency=1.0MHz		177		pF	
Output Capacitance	C_{oss}			30		pF	
Reverse Transfer Capacitance	C_{rss}			25		pF	
Turn-ON Delay Time	$t_{d(on)}$				11		ns
Rise Time	t_r	$V_{DD} = -10V, I_D = -2A,$ $R_G = 3.3\Omega, V_{GS} = -4.5V$		32		ns	
Turn-OFF Delay Time	$t_{d(off)}$			25		ns	
Fall Time	t_f				38		ns
Total Gate Charge	Q_g		$V_{DS} = -10V,$ $V_{GS} = -4.5V,$ $I_D = -2A$		5.3		nC
	Q_{gs}			0.7		nC	
	Q_{gd}			1.4		nC	
Diode Forward Voltage	V_{FSD}	$I_{SD} = -1A, V_{GS} = 0$		-0.77	-1.2	V	

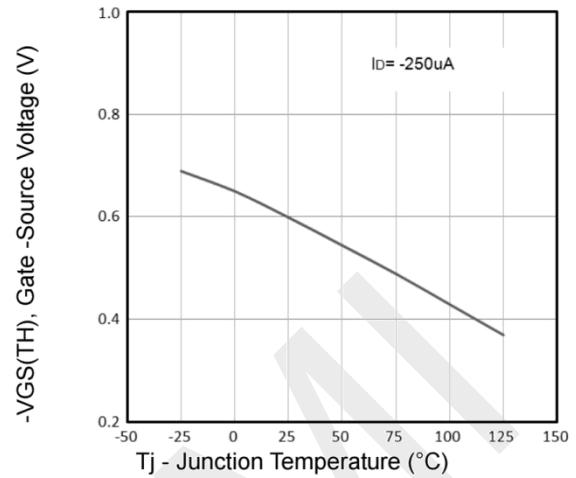
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



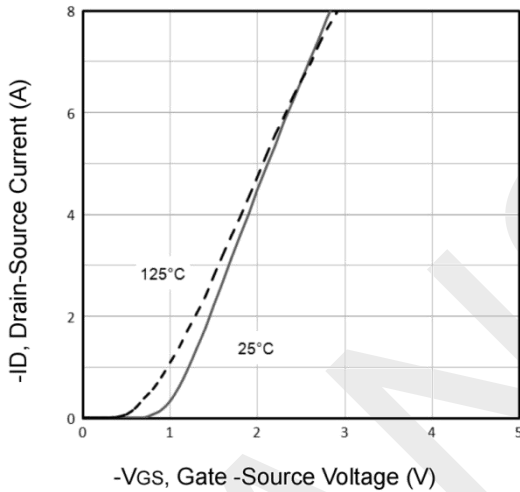
6. Typical Electrical and Thermal Characteristics



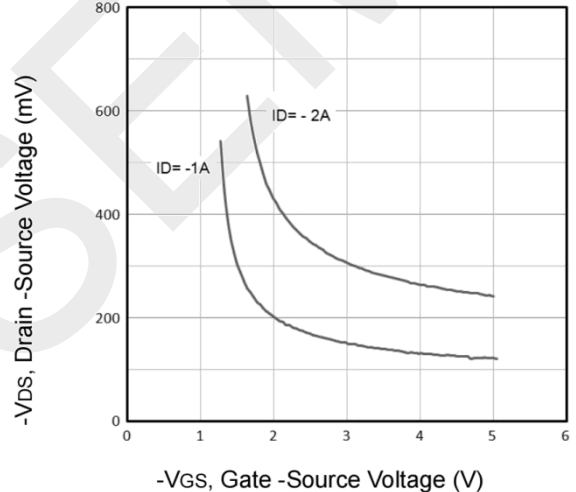
Typical Output Characteristics



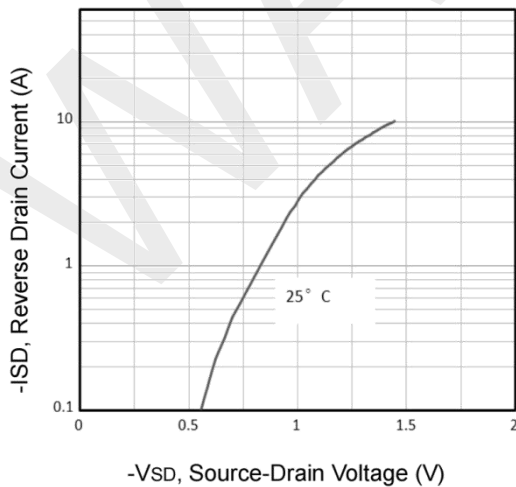
Normalized Threshold Voltage Vs. Temperature



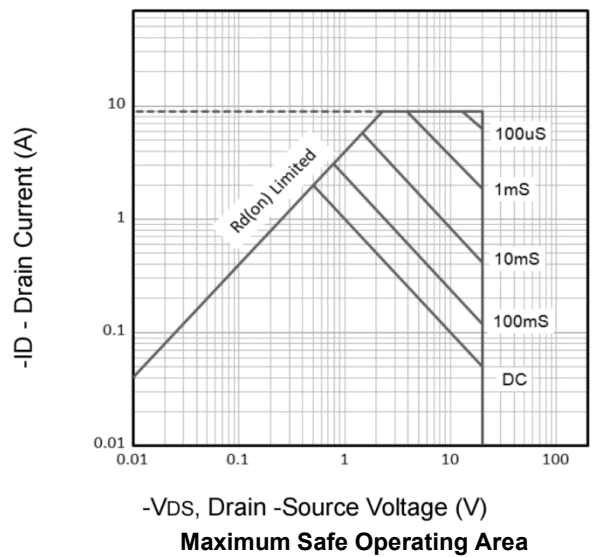
Typical Transfer Characteristics

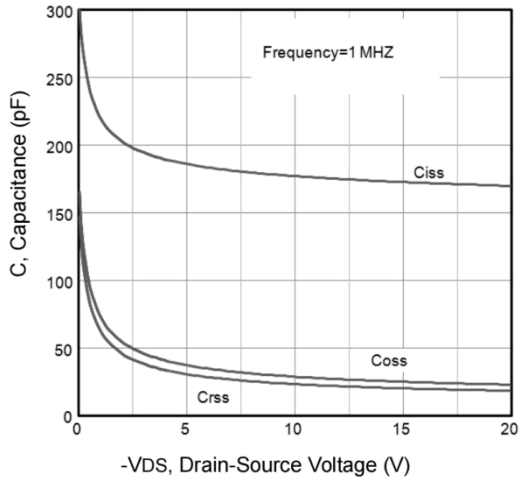


Drain-Source Voltage vs Gate-Source Voltage

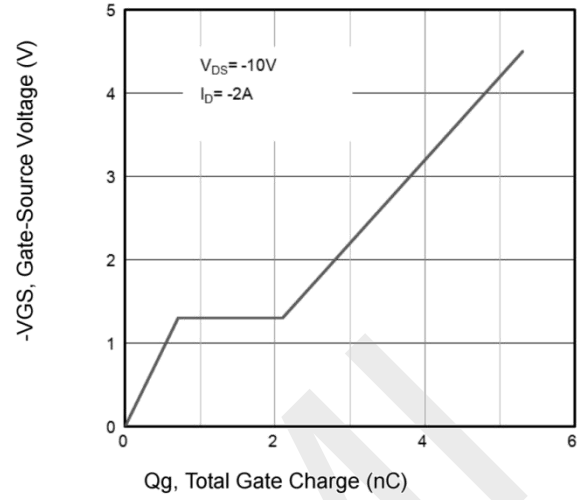


Typical Source-Drain Diode Forward Voltage

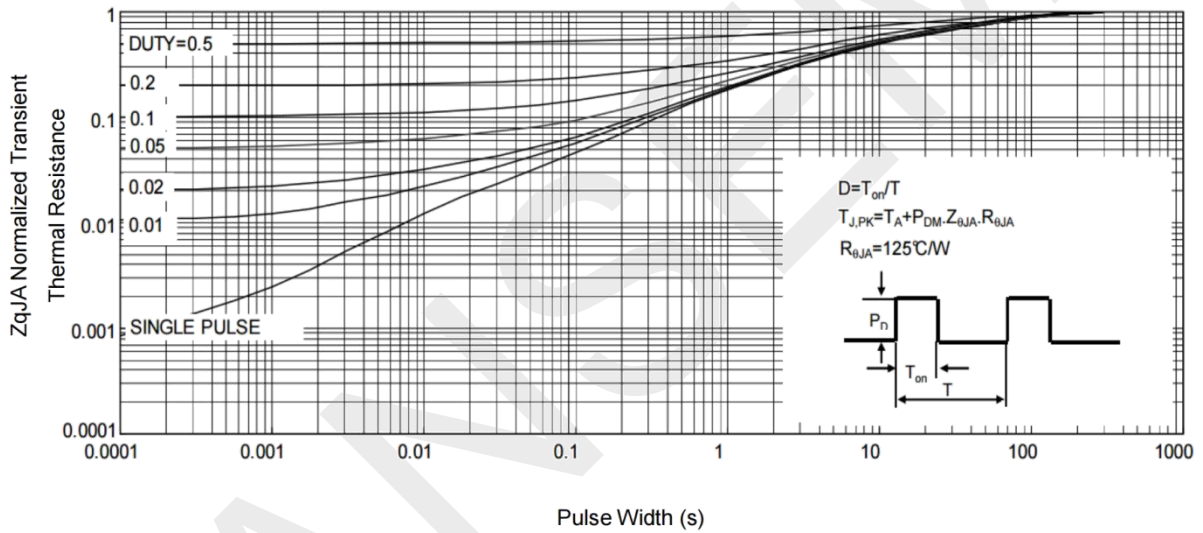




Typical Capacitance Vs. Drain-Source Voltage



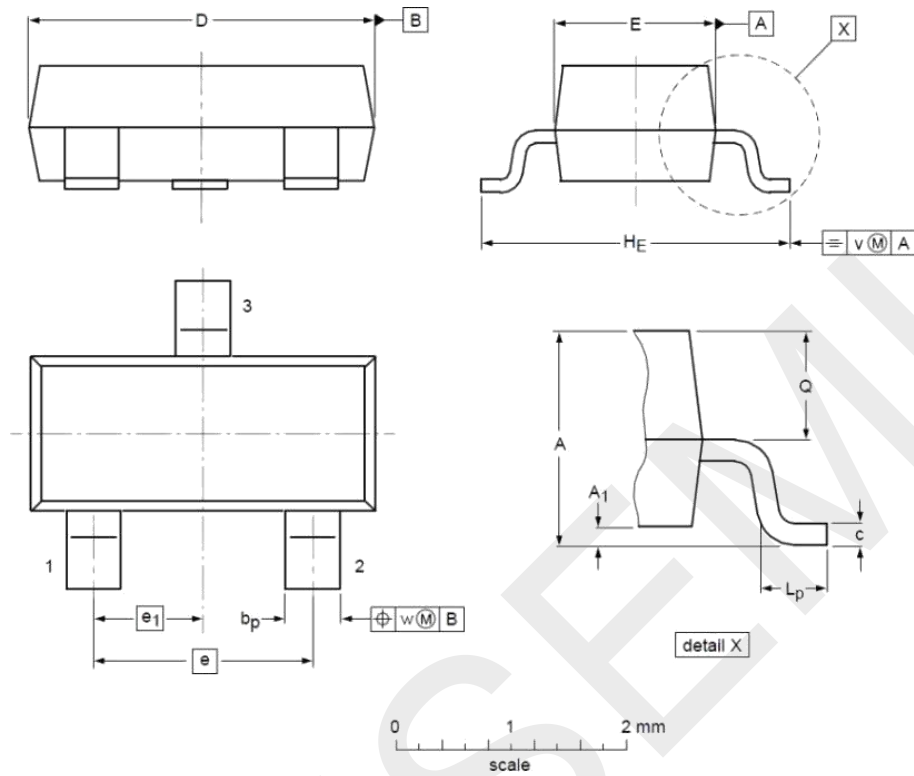
Typical Gate Charge Vs. Gate-Source Voltage



Normalized Maximum Transient Thermal Impedance



7.Package Dimensions



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	A ₁	0.01	0.05	0.10
b _p	0.30	0.42	0.50	c	0.08	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	--	1.90	--	e ₁	--	0.95	--
H _E	2.25	2.40	2.55	L _p	0.30	0.42	0.50
Q	0.45	0.49	0.55	v	--	0.20	--
w	--	0.10	--				

8.Important Notice

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