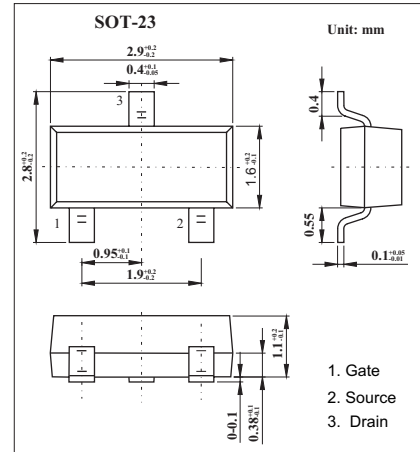
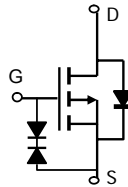


P-Channel Enhancement Mode Field Effect Transistor AO3423

■ Features

- V_{DS} (V) = -20V
- I_D = -2.0 A (V_{GS} = -10V)
- $R_{DS(ON)}$ < 92m Ω (V_{GS} = -10V)
- $R_{DS(ON)}$ < 118m Ω (V_{GS} = -4.5V)
- $R_{DS(ON)}$ < 166m Ω (V_{GS} = -2.5V)
- ESD Rating: 2000V HBM



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current (Note 1)	I_D	$T_A=25^\circ\text{C}^a$	-2
		$T_A=70^\circ\text{C}^a$	-2
Pulsed Drain Current (Note 2)	I_{DM}	-8	A
Power Dissipation (Note 1)	P_D	$T_A=25^\circ\text{C}$	1.4
		$T_A=70^\circ\text{C}$	0.9
Maximum Junction-to-Ambient (Note 1)	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Lead (Note 3)	$R_{\theta JL}$	60	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

- Notes : 1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.
- a. The maximum current rating is limited by bond-wires.
2. Repetitive rating, pulse width limited by junction temperature.
3. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-0.5	μA
		V _{DS} =-16V, V _{GS} =0V, T _J =55°C			-2.5	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-0.7		-1.4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-2A		76	92	mΩ
		V _{GS} =-4.5V, I _D =-2A		94	118	mΩ
		V _{GS} =-2.5V, I _D =-1A		128	166	mΩ
On state drain current	I _{D(on)}	V _{GS} =-4.5V, V _{DS} =-5V	-8			A
Forward Transconductance	g _{fs}	V _{DS} =-5V, I _D =-2A		6.8		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		512	620	pF
Output Capacitance	C _{oss}			77		pF
Reverse Transfer Capacitance	C _{rss}			62		pF
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz			13	Ω
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-2A		5.5	6.6	nC
Gate Source Charge	Q _{gs}			0.8		nC
Gate Drain Charge	Q _{gd}			1.9		nC
Turn-On DelayTime	t _{D(on)}	V _{GS} =-10V, V _{DS} =-10V, R _L =5Ω, R _{GEN} =3Ω		5		ns
Turn-On Rise Time	t _r			6.7		ns
Turn-Off DelayTime	t _{D(off)}			28		ns
Turn-Off Fall Time	t _f			13.5		ns
Body Diode Reverse Recovery Time	t _{rr}	I _F =-2A, dI/dt=100A/μs			12	ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =-2A, dI/dt=100A/μs		2.7		nC
Maximum Body-Diode Continuous Current	I _S				-1.8	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V		-0.78	-1	V

■ Marking

Marking	AS9D
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AO3423

■ Typical Characteristics

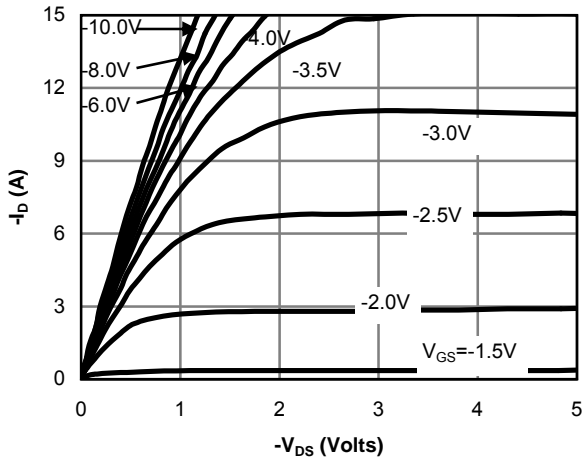


Fig 1: On-Region Characteristics

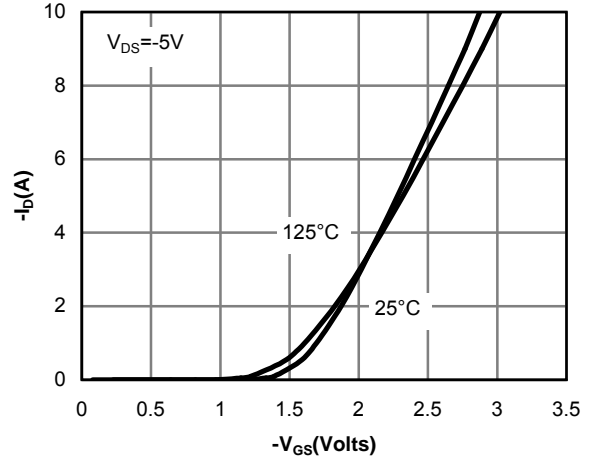


Figure 2: Transfer Characteristics

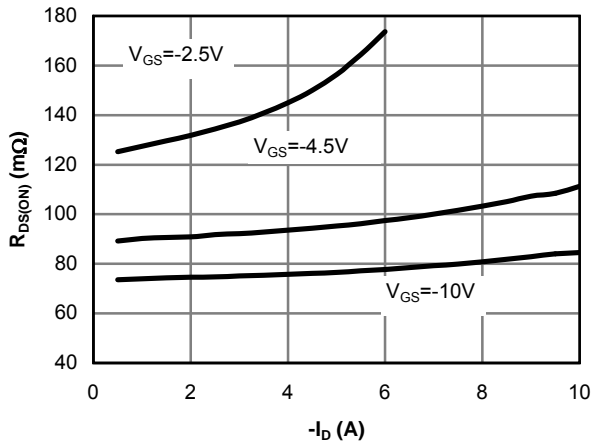


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

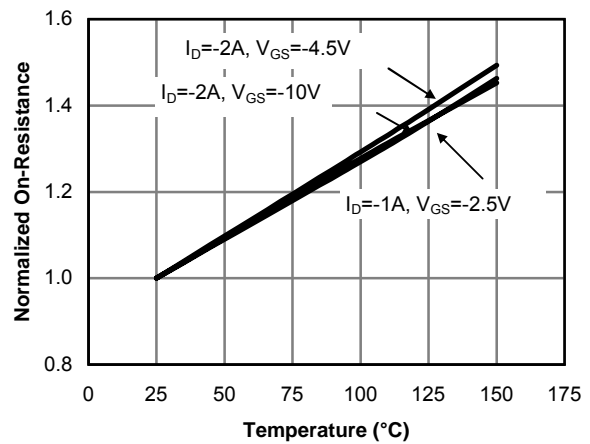


Figure 4: On-Resistance vs. Junction Temperature

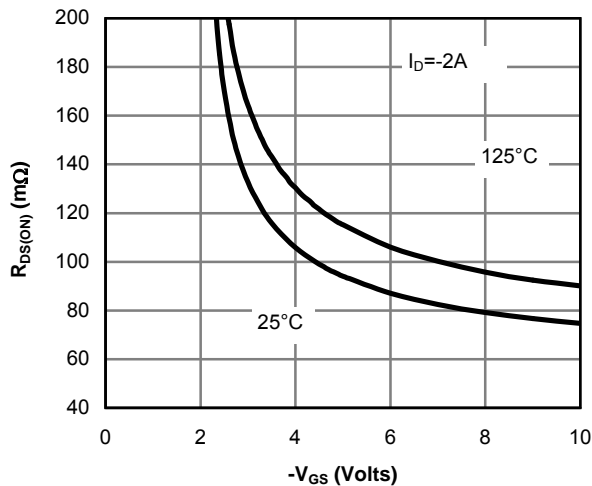


Figure 5: On-Resistance vs. Gate-Source Voltage

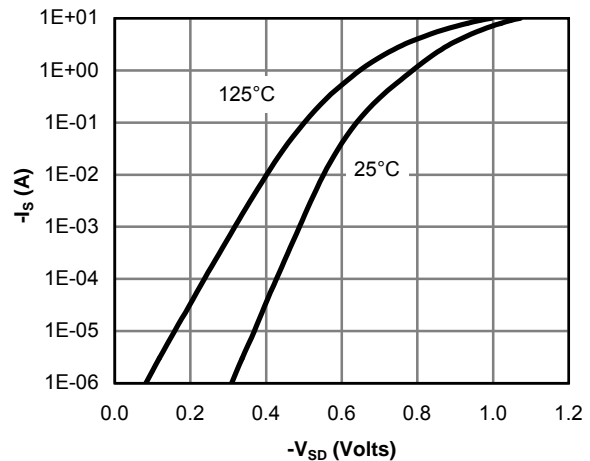


Figure 6: Body-Diode Characteristics

AO3423

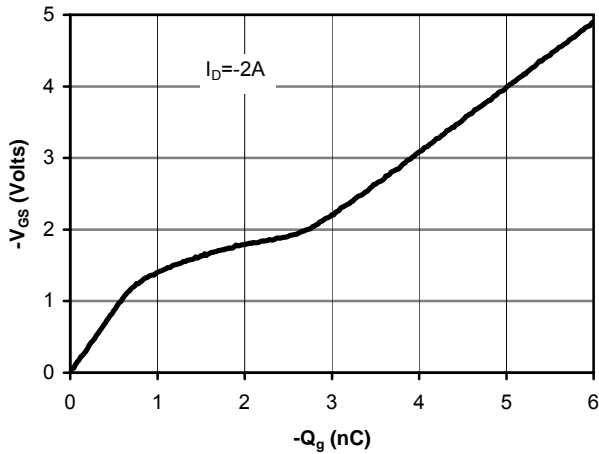


Figure 7: Gate-Charge Characteristics

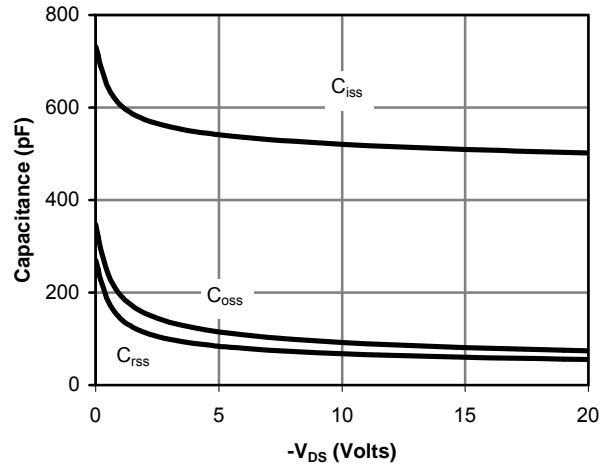


Figure 8: Capacitance Characteristics

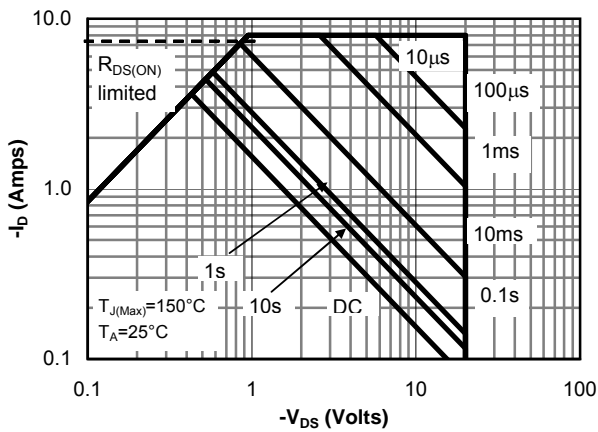


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

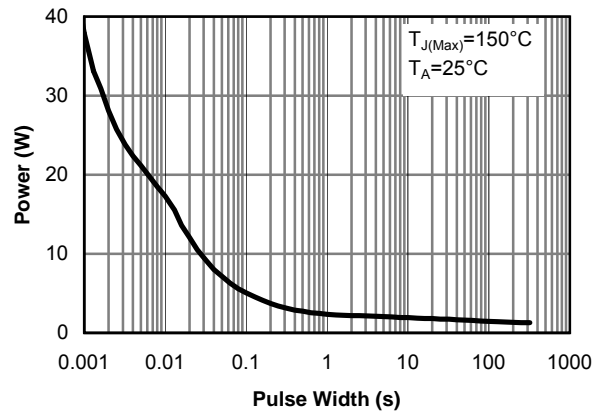


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

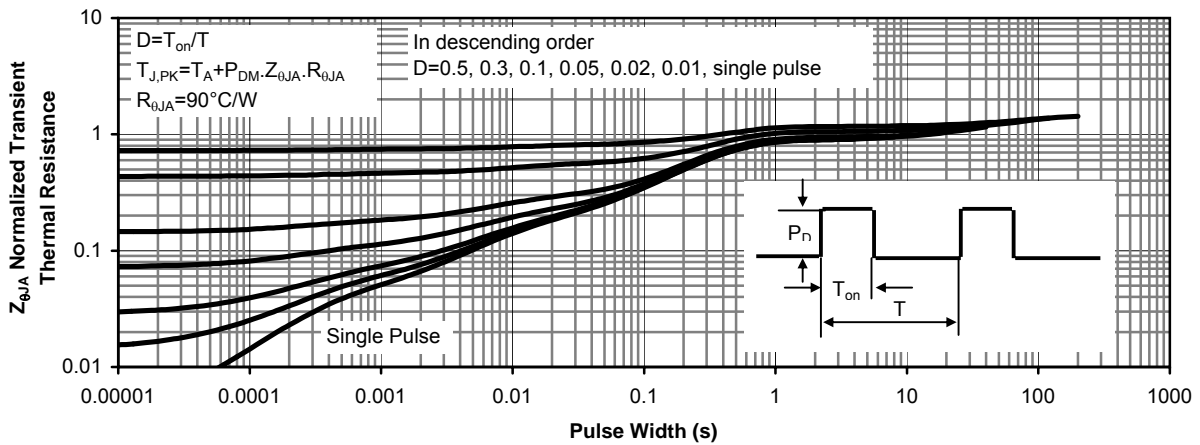


Figure 11: Normalized Maximum Transient Thermal Impedance