

Features

- $V_{DS}=20V, I_D=2.1A$
- $R_{DS(ON)}=28m\Omega$ (TYP.) $V_{GS}=4.5V$
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance

Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

Ordering Information

Device	Package		Marking	Package Qty.
AP2302AI	SOT-23	Pb-Free	S2	3000pcs/Reel

Absolute Maximum Ratings (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	20	V
Gate-Source Voltage (V _{GS} =0V, static)	V _{GS}	±8	V
Continuous Drain Current (T _C =25°C)	I _D	2.1	A
Continuous Drain Current (T _C =100°C)		0.6	A
Maximum Power Dissipation (T _C =25°C)	P _D	0.4	W
Operating, Storage Temperature Range	T _J , T _{STG}	-55~150	°C

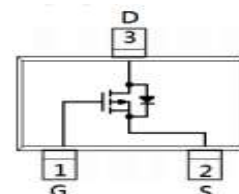
Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	-	60	-	°C/W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	-	125	-	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
Gate -Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.65	0.95	1.2	V
Drain-Source On-stage Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =2.8A	-	35	60	mΩ
		V _{GS} =2.5V, I _D =2.5A	-	45	115	
Body Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{SD} =1A	-	0.76	1.2	V

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Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	-	300	-	pF
Output capacitance	C_{oss}		-	120	-	
Reverse transfer capacitance	C_{rss}		-	80	-	
Total Gate Charge	Q_g	$V_{DS}=15V$ $V_{GS}=4.5V$ $I_D=5.8A$	-	4.0	-	nC
Gate Source Charge	Q_{gs}		-	0.65	-	
Gate Drain Charge	Q_{gd}		-	1.5	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=2.7\Omega$ $R_G=3\Omega$	-	7	-	ns
Rise time	t_r		-	55	-	
Turn-off delay Time	$t_{d(off)}$		-	16	-	
Fall time	t_f		-	10	-	
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=5A$ $d_i/d_t=100A/\mu s$	-	16	-	ns
Reverse Recovery Charge	Q_{rr}		-	9	-	nC

Electrical Characteristics Diagrames

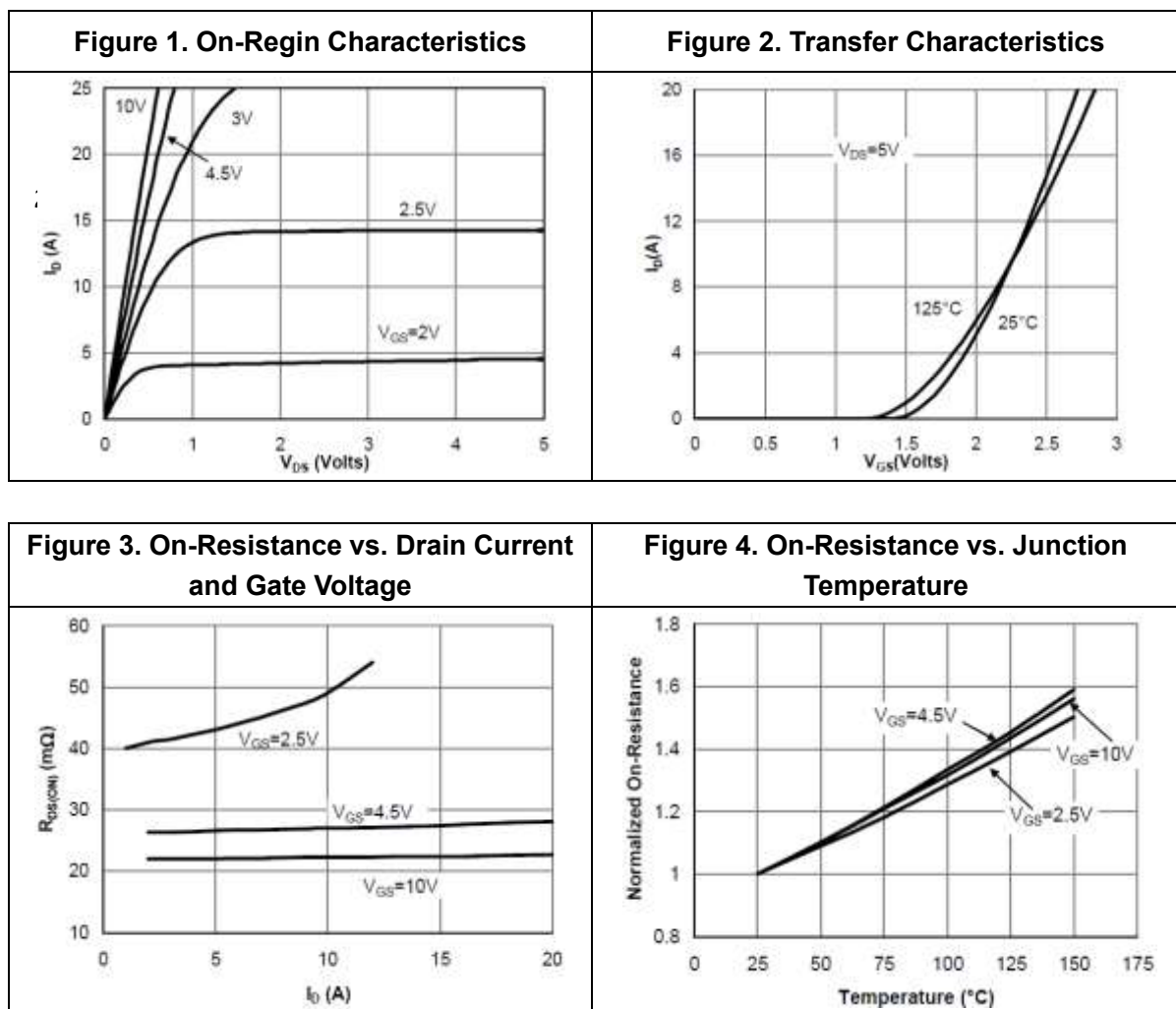


Figure 5. On-Resistance vs. Gate-Source Voltage

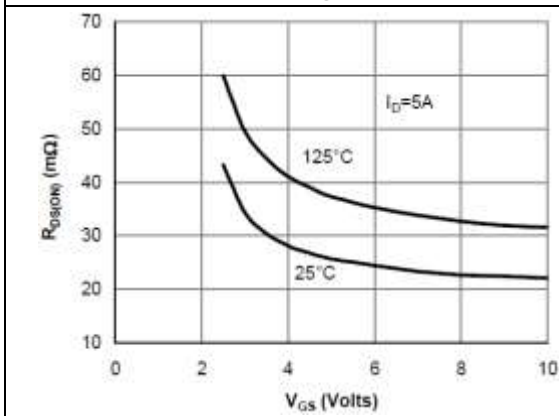


Figure 6. Body-Diode Characteristics

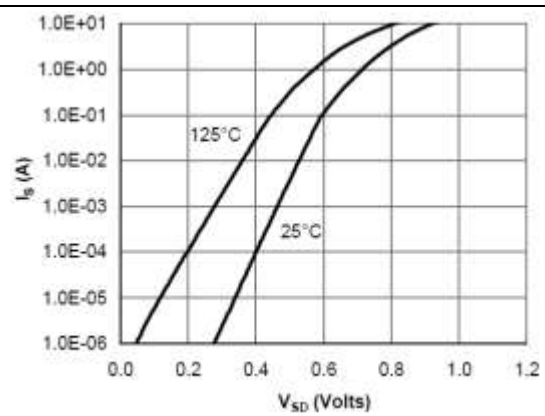


Figure 7. Gate-Charge Characteristics

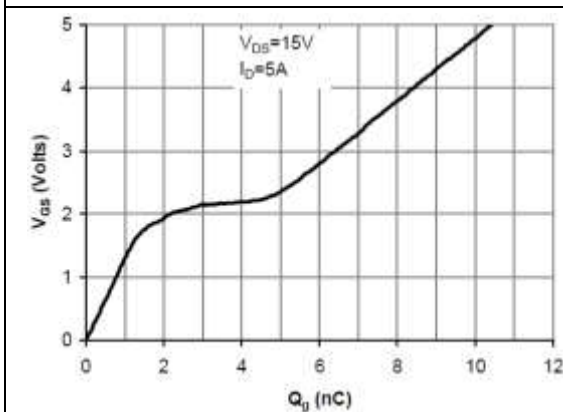


Figure 8. Capacitance Characteristics

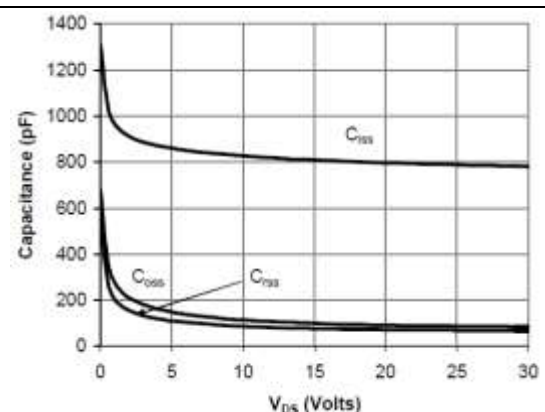


Figure 9. Maximum Forward Biased Safe Operating Area

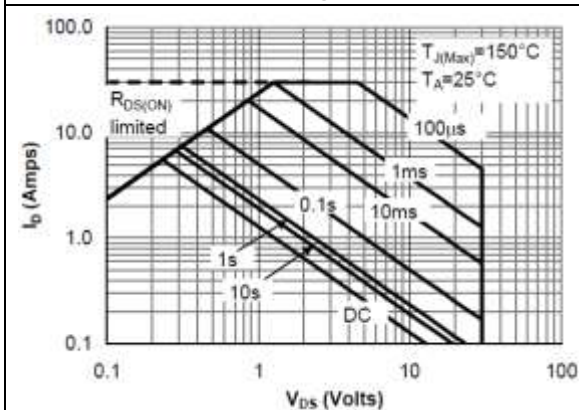


Figure 10. Single Pulse Power Rating Junction-to-Ambient

