

20V_{DS} N-Channel Enhancement Mode MOSFET

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

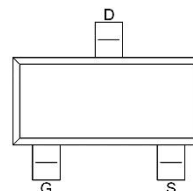


SOT-23



Applications

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



Ordering Information

Device	Package		Marking	Package Qty.
AF2302N	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 ($T_C=25^\circ C$)	I_D	2.1	A
Continuous Drain Current ($T_C=100^\circ C$)		0.6	A
Maximum Power Dissipation ($T_C=25^\circ C$)	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	$R_{\theta JC}$	-	60	-	$^{\circ}\text{C}/\text{W}$
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	125	-	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$	-	-	1	μA
Gate -Source Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	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	m Ω
		$V_{GS}=2.5V, I_D=2.5A$	-	45	115	

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 Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=1A$	-	0.76	1.2	V
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

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