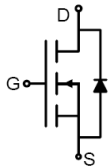


Features

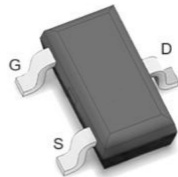
- Low Gate Charge
- High Power and current handling capability
- Lead free product is acquired

Application

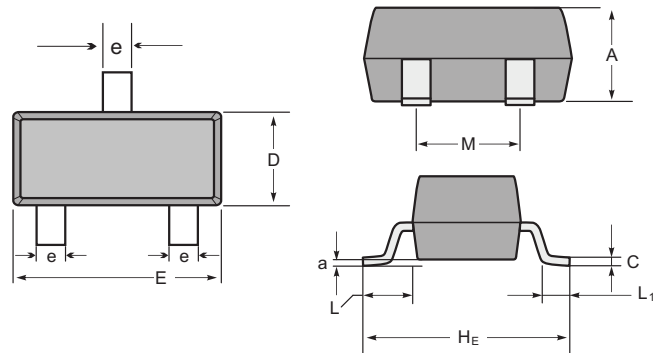
- PWM Applications
- Load Switch
- Power Management



Schematic Diagram



SOT-23 top view



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter	Limit	Unit
V _{DS}	Drain-Source Voltage (V _{GS} =0V)	60	V
V _{GS}	Gate-Source Voltage (V _{DS} =0V)	±20	V
I _D	Drain Current-Continuous(T _A =25°C)	3	A
	Drain Current-Continuous(T _A =100°C)	1.9	A
I _{DM} (pulse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	12	A
P _D	Maximum Power Dissipation(T _A =25°C)	1.5	W
	Maximum Power Dissipation(T _A =100°C)	0.6	W
E _{AS}	Avalanche energy (Note 2)	12	mJ
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
R _{θJA}	Thermal Resistance, Junction-to-Ambient		83	°C/W

AO3422

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	60			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V T _J =25°C			1	μA
		V _{DS} =60V, V _{GS} =0V T _J =125°C			100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1		2.5	V
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =2A		4.1		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =2A T _J =25°C		75	85	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =1.5A T _J =25°C		90	100	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1.0MHz		369		pF
C _{oss}	Output Capacitance			28		pF
C _{rss}	Reverse Transfer Capacitance			22		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		0.78		Ω
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =30V, R _L =15Ω, R _{GEN} =3Ω		5		nS
t _r	Turn-on Rise Time			8		nS
t _{d(off)}	Turn-Off Delay Time			36		nS
t _f	Turn-Off Fall Time			21		nS
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =2A		9		nC
Q _{gs}	Gate-Source Charge			1.6		nC
Q _{gd}	Gate-Drain Charge			2		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				3	A
V _{SD}	Forward on Voltage (Note 3)	V _{GS} =0V, I _S =2A			1.2	V
t _{rr}	Reverse Recovery Time	I _F =2A, dI/dt=100A/μs		20		ns
Q _{rr}	Reverse Recovery Charge	I _F =2A, dI/dt=100A/μs		8		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.EAS condition: T_J=25°C, V_{DD}=40V, V_G=10V, R_g=25Ω, L=0.5mH.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

RATING AND CHARACTERISTIC CURVES (AO3422)

Figure 1. Output Characteristics

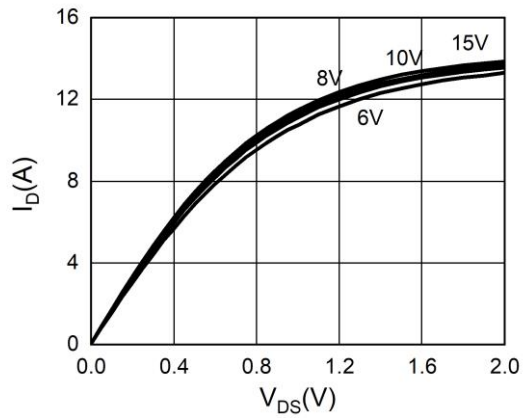


Figure 2. Transfer Characteristics

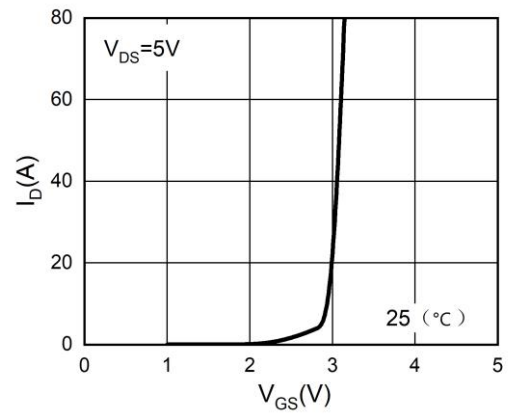


Figure 3. Power Dissipation

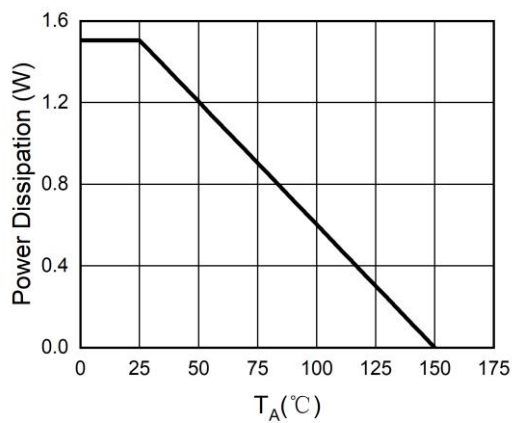


Figure 4. Drain Current

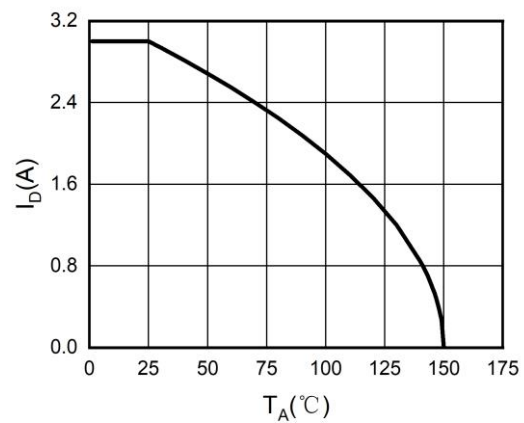


Figure 5. BV_{DSS} vs Junction Temperature

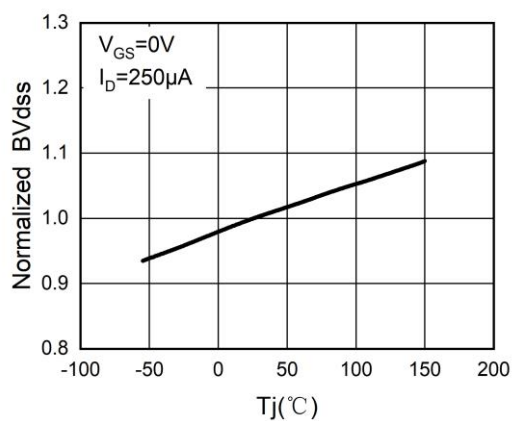
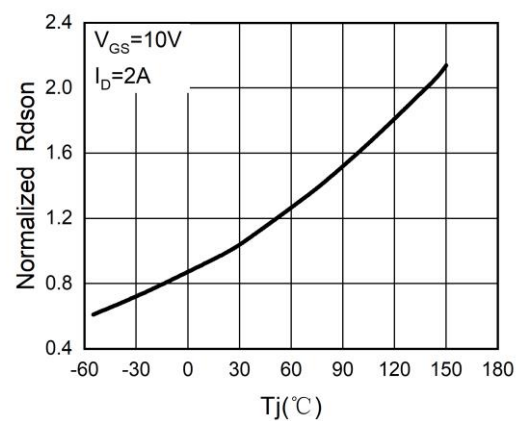


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTIC CURVES (AO3422)

Figure 7. Gate Charge Waveforms

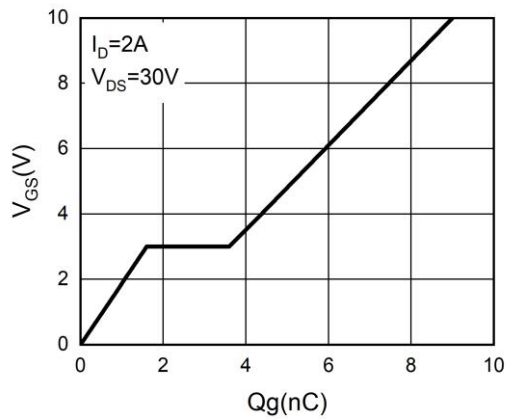


Figure 8. Capacitance

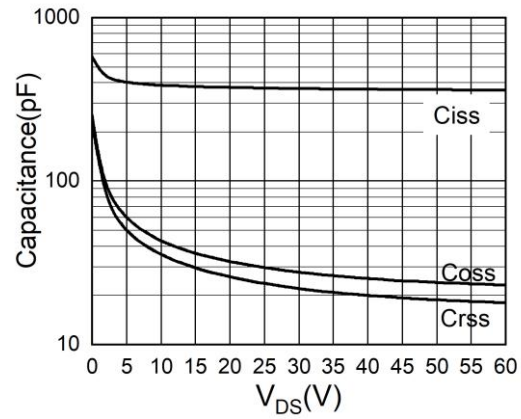


Figure 9. Body-Diode Characteristics

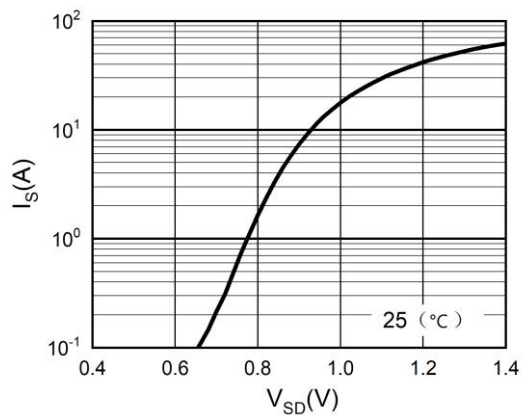


Figure 10. Maximum Safe Operating Area

