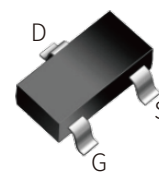


FEATURES

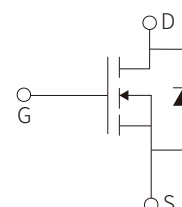
- | $V_{DS} = 20V, I_D = 3A$
- | $R_{DS(ON)} < 70\text{ m}\Omega @ V_{GS} = 4.5V$
- | $R_{DS(ON)} < 90\text{ m}\Omega @ V_{GS} = 2.5V$
- | Lead free product is acquired
- | Very low On-resistance $R_{DS(ON)}$
- | Fast switching
- | Low cr_{SS}



SOT-23



Marking



Schematic Symbol

APPLICATION

- | PWM applications
- | Load switch
- | Power management
- | Video monitor

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate Threshold Voltage	V_{GSS}	± 10	V
Drain Current - Continuous ($T_c = 25^\circ\text{C}$)	I_D	3.0	A
Drain Current - Continuous ($T_c = 70^\circ\text{C}$)		2.4	
Pulsed Drain Current (Note1)	I_{DM}	10	A
Power Dissipation ($T_c = 25^\circ\text{C}$)	P_D	1.0	W
Thermal Resistance Junction- to- Ambient	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V,I _D =250μA	20			V
Gate-source leakage current	I _{GSS}	V _{GS} =±10V,V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V,V _{GS} =0V			1	μA
		V _{DS} =16V,T _C =125°C			10	μA
On Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	0.45		1.1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V,I _D =3A		50	70	mΩ
		V _{GS} =2.5V,I _D =2A		72	90	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1.0MHz		125		pF
Output Capacitance	C _{oss}			27.6		pF
Reverse Transfer Capacitance	C _{rss}			25.5		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V,I _D =3A V _{GS} =5V,R _G =6Ω R _L =2.7Ω		40		ns
Turn-on Rise Time	t _r			30		ns
Turn-Off Delay Time	t _{d(off)}			10		ns
Turn-off Fall Time	t _f			3.4		ns
Total Gate Charge	Q _g	V _{DS} =10V,I _D =3A V _{GS} =5V		476		nC
Gate-Source Charge	Q _{gs}			4.17		nC
Gate-Drain Charge	Q _{gd}			0.6		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Curren	I _S				3	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				6	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{SD} =3A,T _J =25°C			1.2	V

PARAMETER CHARACTERISTIC CURVE

Figure1: Output Characteristic

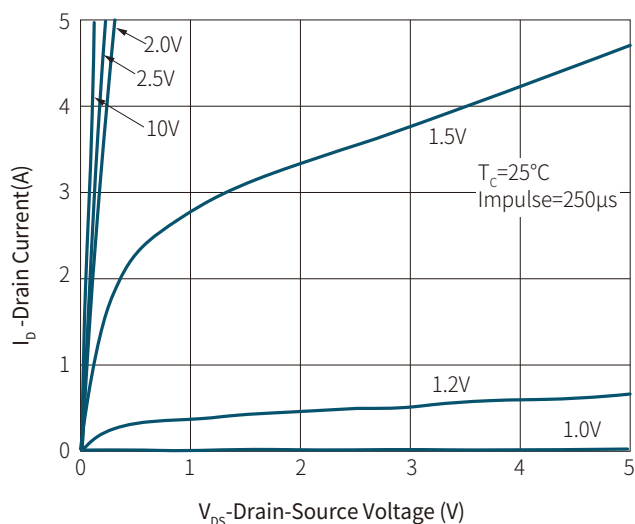


Figure2: Transfer Characteristic

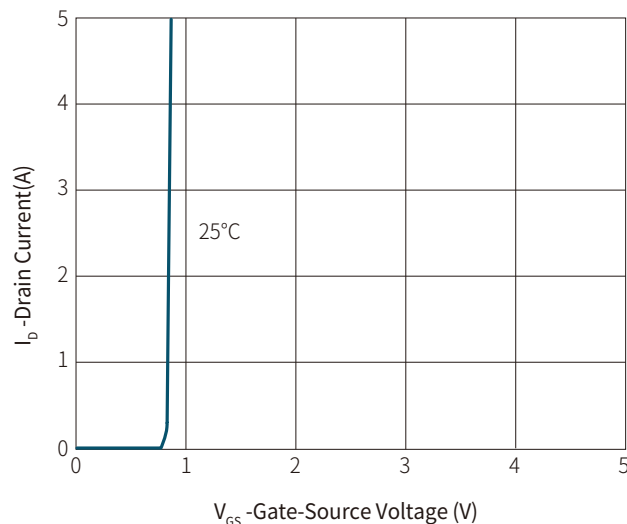


Figure3: On-Resistance Variation vs Drain Current and Gate Voltage

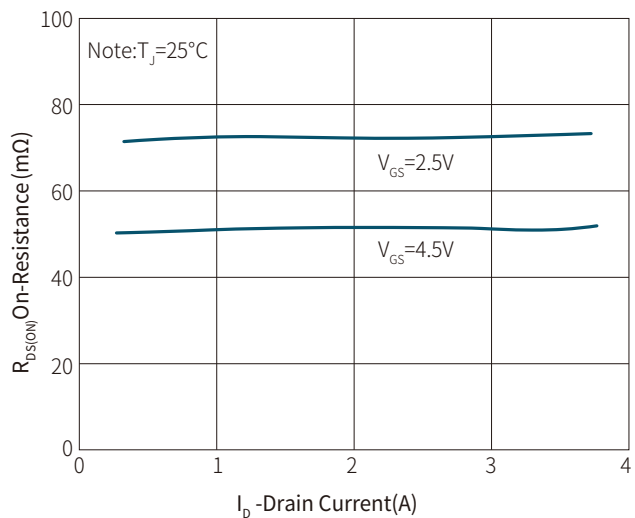


Figure 4: Body Diode Forward Voltage Variation with Source Current and Temperature

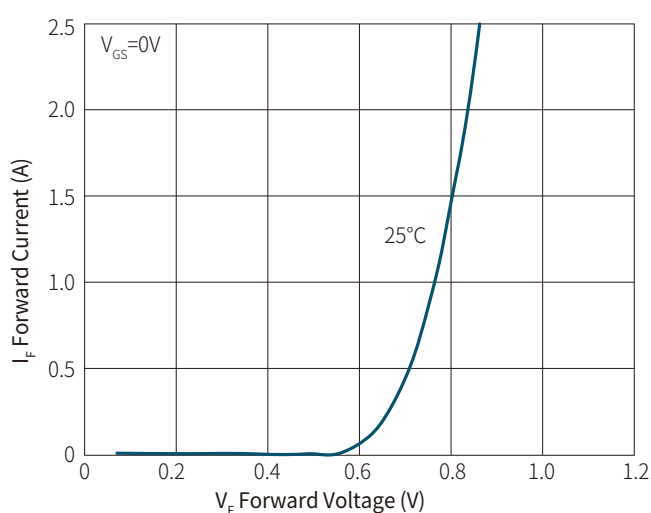


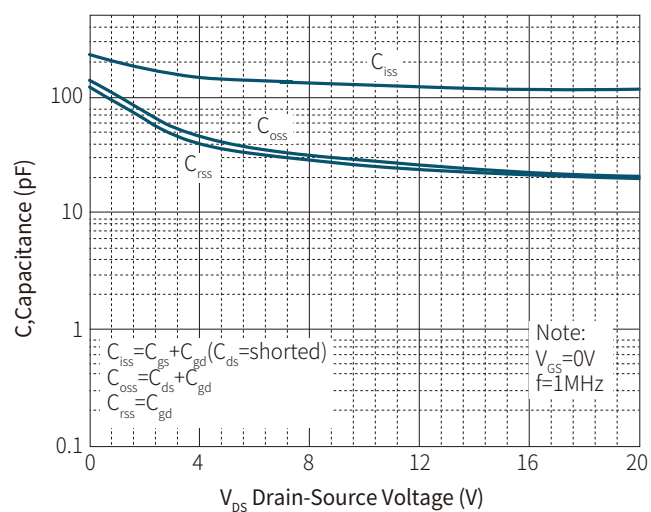
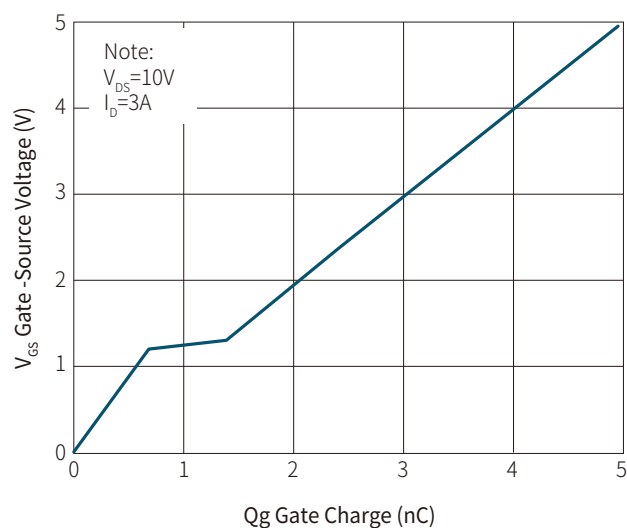
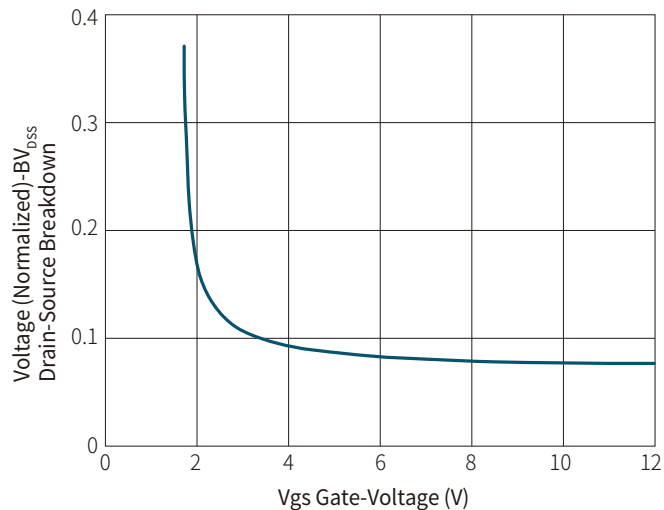
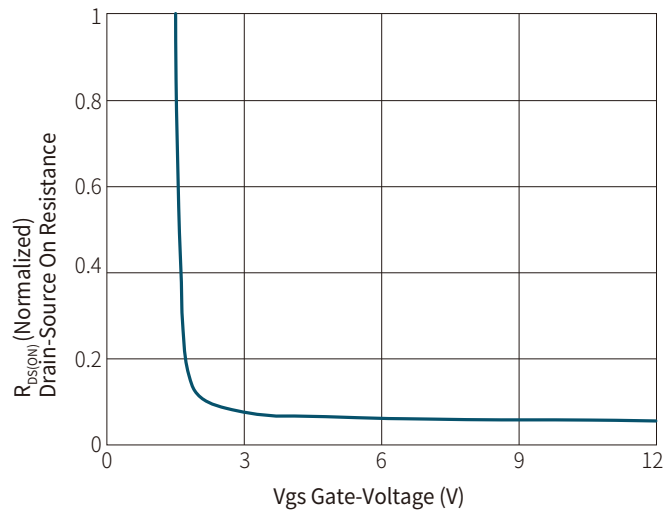
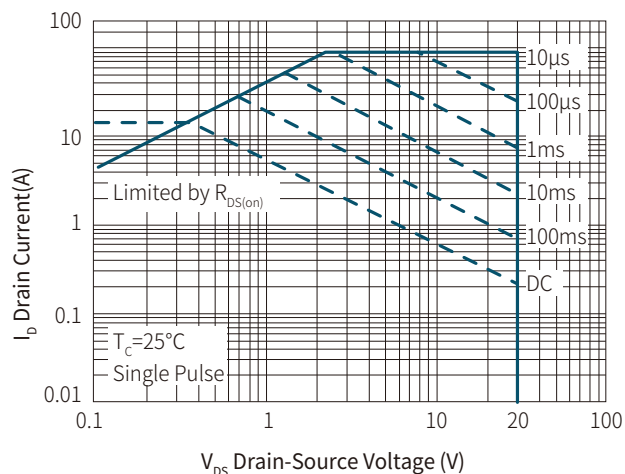
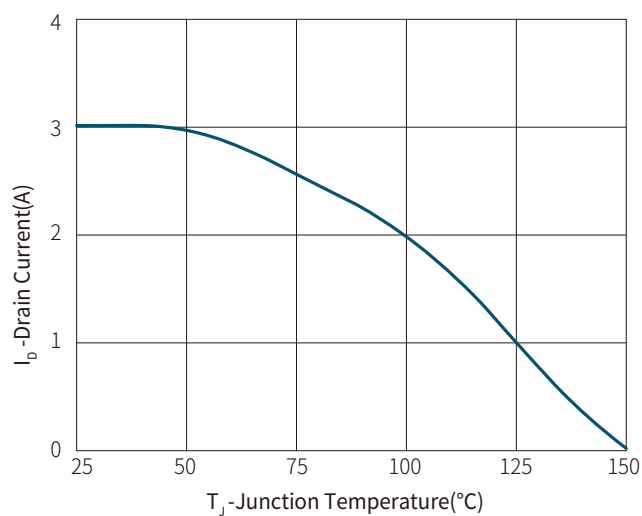
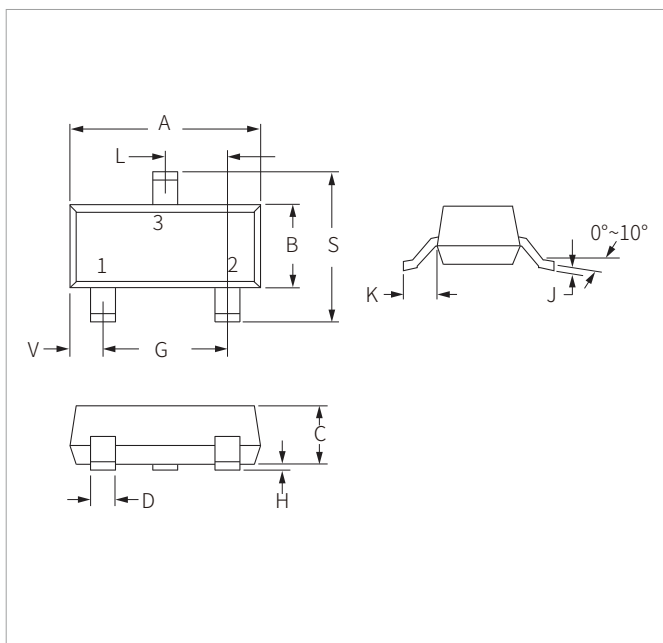
Figure 5: Capacitance Characteristics

Figure 6: Gate Charge Characteristics

Figure 7: Breakdown Voltage Variation vs Gate-Voltage

Figure 8: On-Resistance Variation vs Gate-Voltage


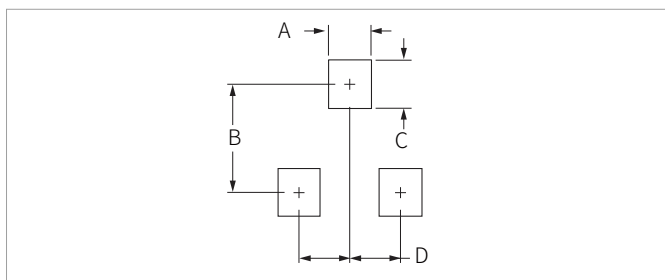
Figure 9: Maximum Safe Operating Area

Figure 10: Maximum PContinuous Drain Current vs Case Temperature


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.60	0.047	0.063
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
AO3414	SOT-23	3000PCS	7"

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