

-20V_{DS}/±8V_{GS} P-Channel Enhancement Mode MOSFET

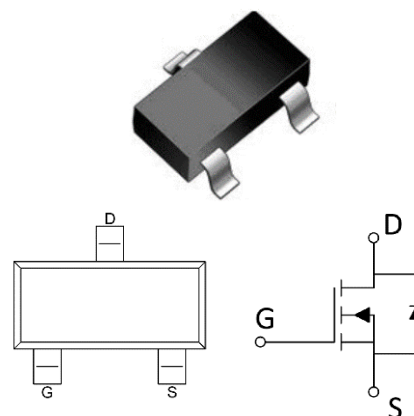
Features

- V_{DS}=-20V, I_D=-3A
- R_{DS(ON)}=85mΩ (TYP.) V_{GS}=10V
- R_{DS(ON)}=120mΩ (TYP.) V_{GS}=4.5V

Applications

- Portable device
- Switch switching

SOT23-3L



Ordering Information

Device	package	Device Marking	Package Qty.
AO3413	SOT-23-3L	AD**	3000/PCS

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	-3	A
Continuous Drain Current (T _C =100°C)		1.8	A
Pulse Drain Current	I _{DM}	15	A
Maximum Power Dissipation (T _C =25°C)	P _D	1.5	W
Maximum Power Dissipation (T _C =100°C)		0.9	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}	$V_{GS}=0V, I_D=250\mu A$	-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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	1.8	1.1	V
Drain-Source On-stage Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=5.8A$	-	75	90	m Ω
		$V_{GS}=4.5V, I_D=5A$	-	85	130	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$	-	1500	-	pF
Output capacitance	C_{oss}		-	80	-	
Reverse transfer capacitance	C_{rss}		-	2	-	
Gate Resistance	R_g	$f=1MHz$	-	1.4	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15V$ $V_{GS}=4.5V$ $I_D=5.8A$	-	8.5	-	nC
Gate Source Charge	Q_{gs}		-	1.8	-	
Gate Drain Charge	Q_{gd}		-	2.7	-	
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		-	3	-	
Turn-off delay Time	$t_{d(off)}$		-	20	-	
Fall time	t_f		-	12	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=1A$	-	0.85	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

Electrical Characteristics Diagrames

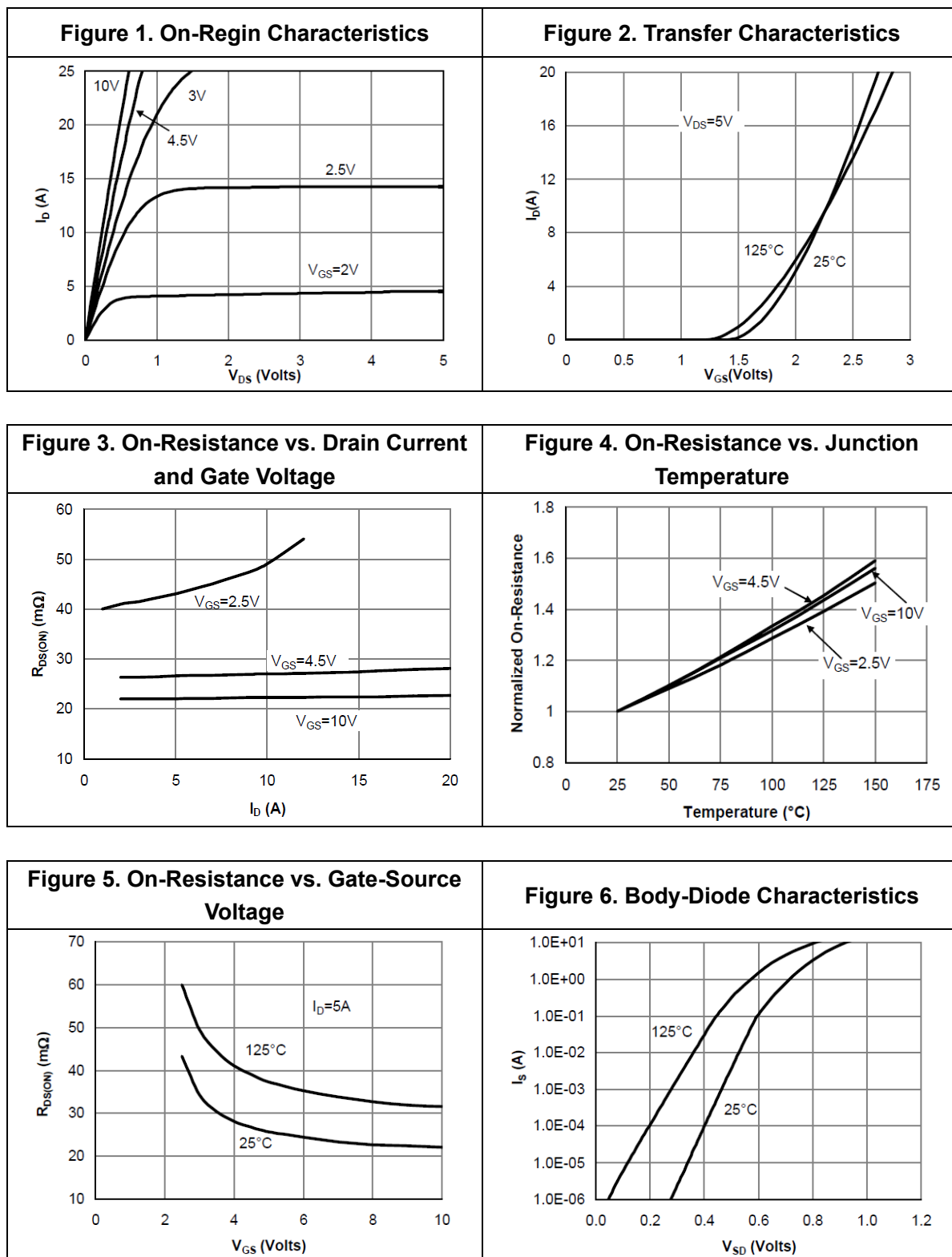


Figure 7. Gate-Charge Characteristics

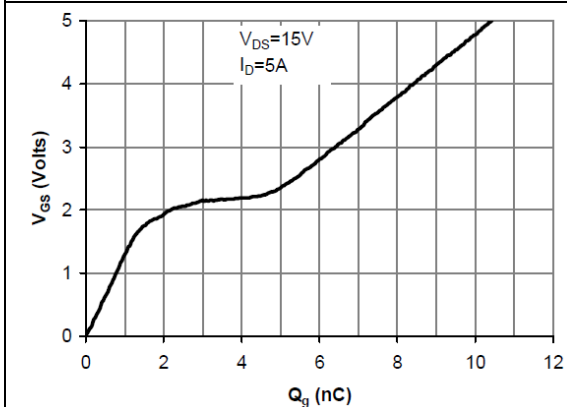


Figure 8. Capacitance Characteristics

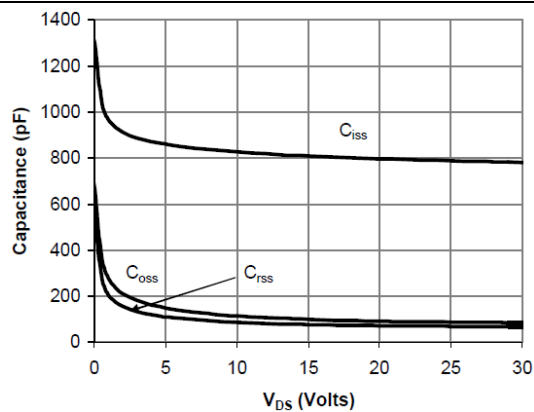


Figure 9. Maximum Forward Biased Safe Operating Area

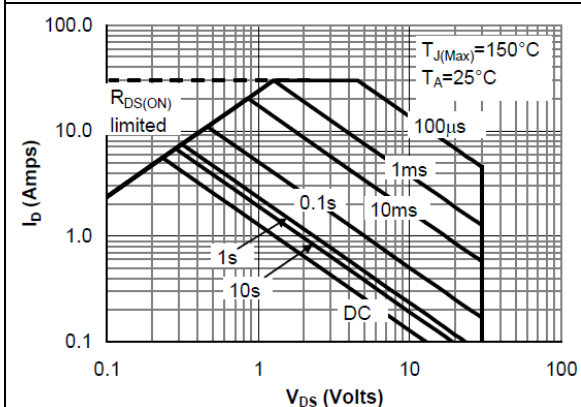


Figure 10. Single Pulse Power Rating Junction-to-Ambient

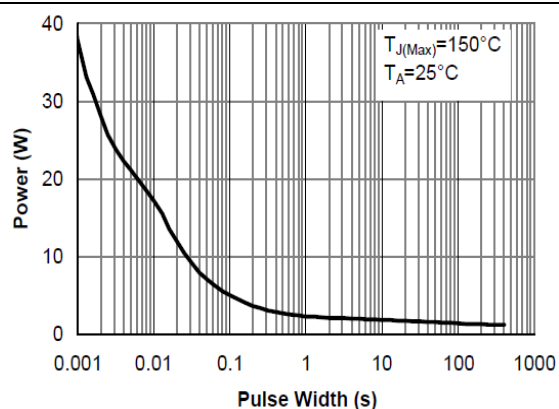
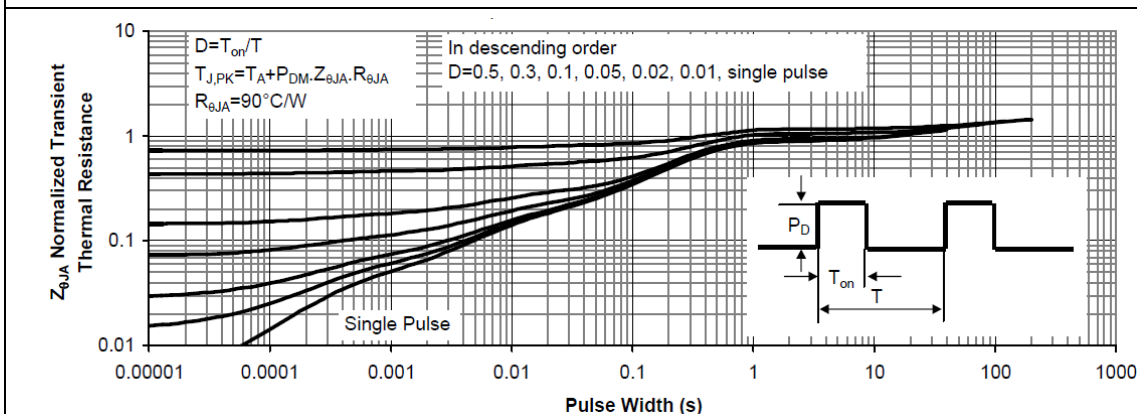
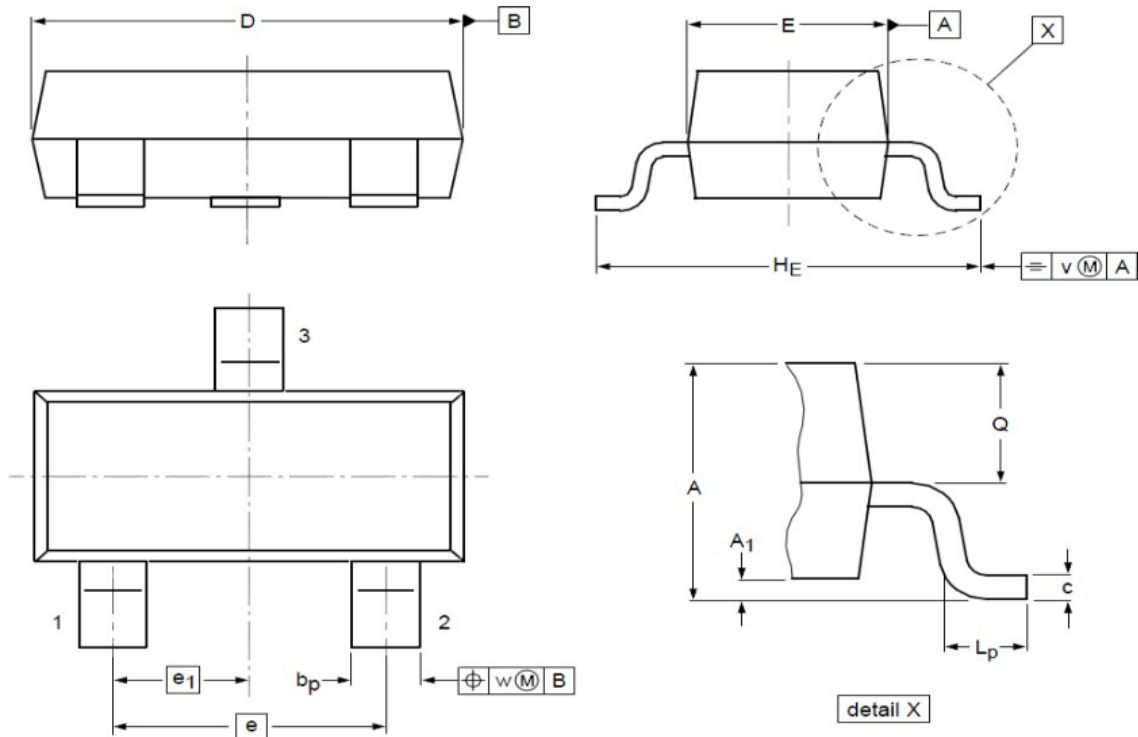


Figure 11. Normalized Maximum Transient Thermal Impedance



Physical Dimensions

SOT23-3L



符号	尺寸(mm)			符号	尺寸(mm)		
	最小值	典型值	最大值		最小值	典型值	最大值
A	0.90	1.03	1.10	A1	0.01	0.05	0.10
bp	0.38	0.42	0.48	c	0.09	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	-	1.90	-	e1	-	0.95	-
HE	2.10	2.40	2.50	Lp	0.15	0.23	0.45
Q	0.45	0.49	0.55	v	-	0.20	-
w	-	0.10	-				

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