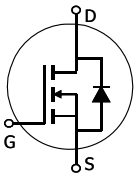
FEATURES

AO3404

N-Channel MOSFET

- The AO3404 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device may be used as a load switch or in PWM applications.



1.Gate
2.Source
3.Drain

SOT-23

Absolute Maximum Ratings (TA=25oC, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current (t ≤10s)	I_D	5.8	A
Pulsed drain current *	I_{DM}	30	A
Thermal resistance from junction to ambient	$R_{\theta JA}$	357	℃/W
Junction temperature	T_J	150	℃
Storage temperature	T_{stg}	-55~ 150	℃

Repetitive rating : Pulse width limited by maximum junction temperature.

AO3404

Electrical Characteristics (TA=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1		3	V
Drain-source on-resistance (note 1)	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A			30	mΩ
		V_{GS} =4.5V, I_D =4.8A			42	mΩ
Forward tranconductance (note 1)	g_{FS}	V_{DS} =5V, I_D =5.8A	5			S
Diode forward voltage	V_{SD}	I_S=1A			1	V
DYNAMIC PARAMETERS (note 2)						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz			820	pF
Output capacitance	C_{oss}			118		pF
Reverse transfer capacitance	C_{rss}			85		pF
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz			1.5	Ω
SWITCHING PARAMETERS(note 2)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.6Ω,R_{GEN}=3Ω			6.5	ns
Turn-on rise time	t_r			3.1		ns
Turn-off delay time	$t_{d(off)}$			15.1		ns
Turn-off fall time	t_f			2.7		ns

Note :

1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. These parameters have no way to verify.

AO3404 Typical Characteristics

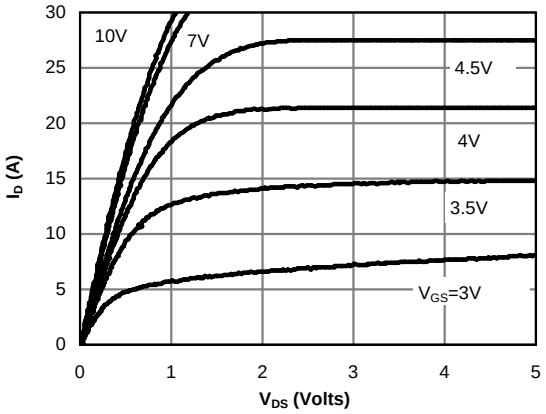


Fig 1: On-Region Characteristics (Note E)

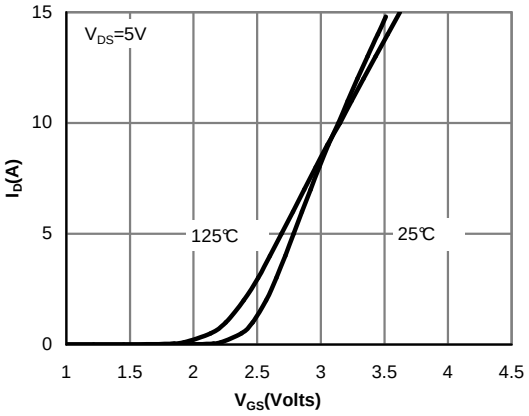


Figure 2: Transfer Characteristics (Note E)

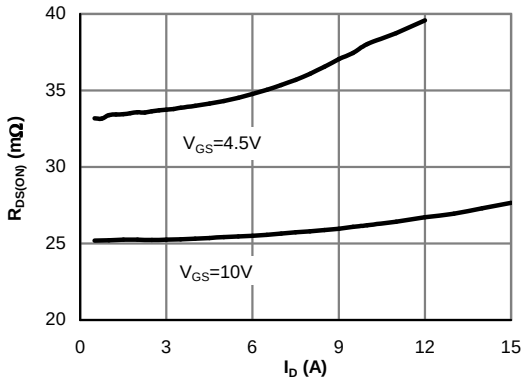


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

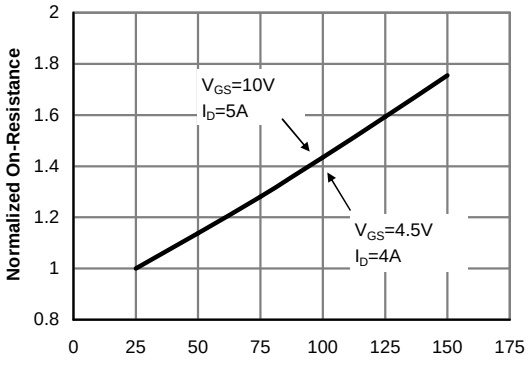


Figure 4: On-Resistance vs. Junction Temperature (Note E)

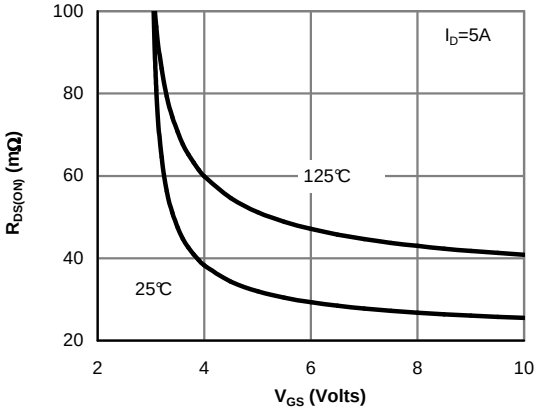


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

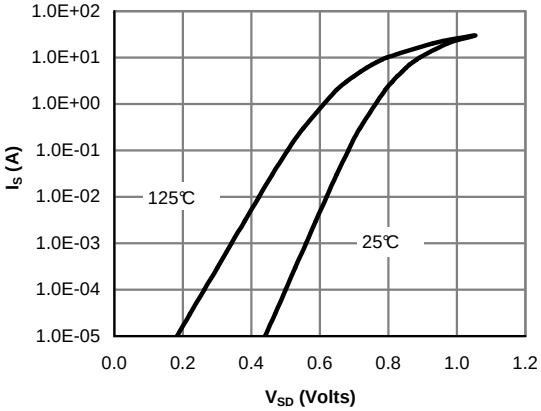


Figure 6: Body-Diode Characteristics (Note E)

AO3404 Typical Characteristics

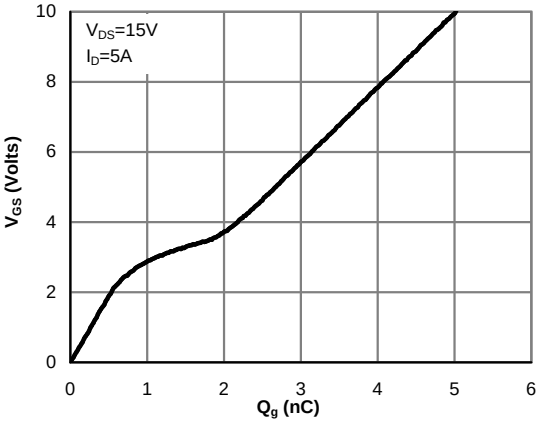


Figure 7: Gate-Charge Characteristics

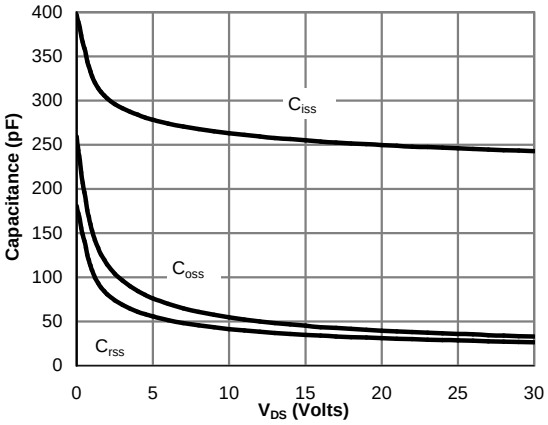


Figure 8: Capacitance Characteristics

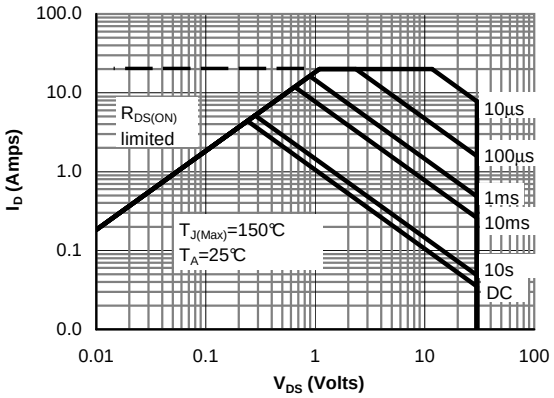


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

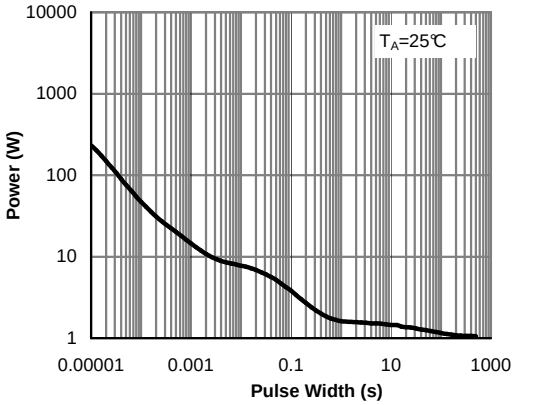


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

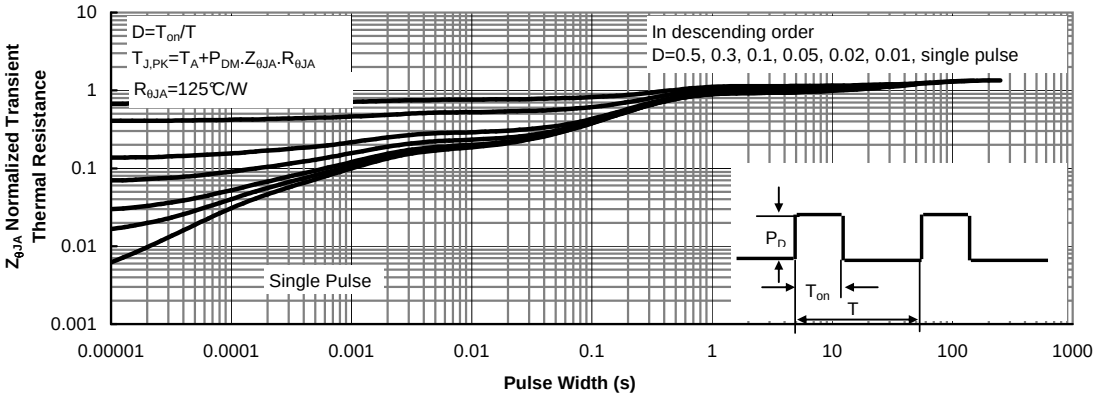


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)