

RoHS
Compliant



Features

- $V_{DS(V)} = 30V$
- $I_D = -3.4 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 60m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 70m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 90m\Omega$ ($V_{GS} = -2.5V$)

Absolute Maximum Ratings ($T_a = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	+12	
Continuous Drain Current	I_D	$T_A = 25^\circ C$	A
		$T_A = 70^\circ C$	
Pulsed Drain Current	I_{DM}	20	
Power Dissipation	P_D	$T_A = 25^\circ C$	W
		$T_A = 70^\circ C$	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 10s$	$^\circ C/W$
		Steady-State	
Thermal Resistance.Junction- to-Lead	R_{thJL}	80	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Electrical Characteristics $T_a = 25^\circ C$

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = -250\mu A, V_{GS} = 0V$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 55^\circ C$			5	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	0.5		1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3.4A$			60	m Ω
		$V_{GS} = 10V, I_D = 3.4A, T_J = 125^\circ C$			88	
		$V_{GS} = 4.5V, I_D = 3A$			70	
		$V_{GS} = 2.5V, I_D = 2A$			90	
On State Drain Current	$I_{D(ON)}$	$V_{GS} = 10V, I_D = 5V$	20			A
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = 3.4A$		14		S

Characteristic	Symbol	Conditions	Min	Typ	Max	Unit	
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$		235		pF	
Output Capacitance	C_{oss}			35			
Reverse Transfer Capacitance	C_{rss}			18			
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1MHz$		4.3		Ω	
Total Gate Charge (10V)	Q_g	$V_{GS}=10V, V_{DS}=15V, I_D=-4.4A$		10		nC	
Total Gate Charge (4.5V)				4.7			
Gate Source Charge			Q_{gs}		0.95		
Gate Drain Charge			Q_{gd}		1.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=15V, R_L=4.4\Omega, R_g=3\Omega$		3.5		nS	
Turn-On Rise Time	t_r			1.5			
Turn-Off Delay Time	$t_{d(off)}$			17.5			
Turn-Off Fall Time	t_f			2.5			
Body Diode Reverse Recovery Time	t_{rr}	$I_f=3.4A, di/dt=100A/\mu s$		8.5		nC	
Body Diode Reverse Recovery Charge	Q_{rr}			2.55			
Maximum Body-Diode Continuous Current	I_s				1.5		A
Diode Forward Voltage	V_{SD}	$I_s=-2A, V_{GS}=0V$			1	V	

* The static characteristics in Figures 1 to 6 are obtained using <300us pulses, duty cycle 0.5% max.

Typical Characteristics

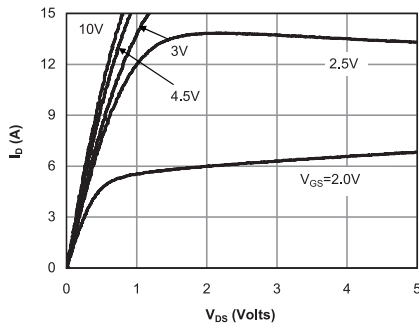


Figure 1: On-Region Characteristics (Note E)

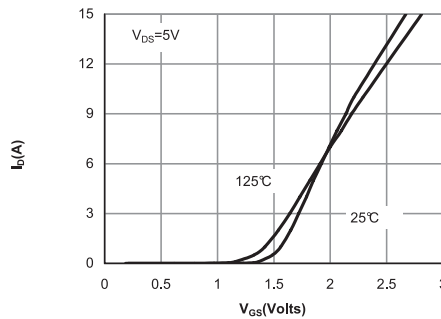


Figure 2: Transfer Characteristics (Note E)

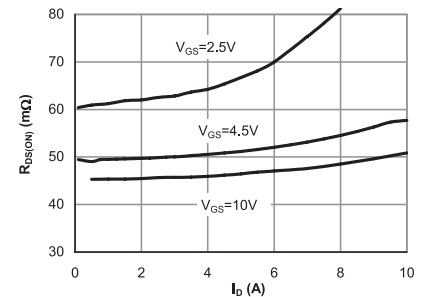


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

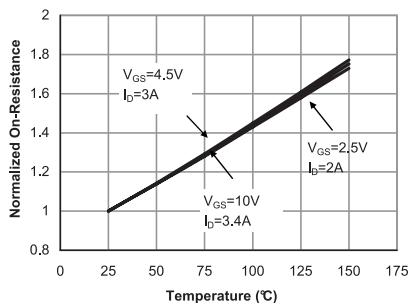


Figure 4: On-Resistance vs. Junction Temperature (Note E)

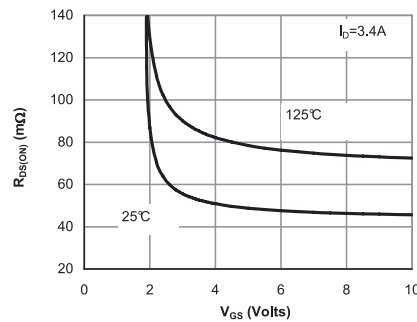


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

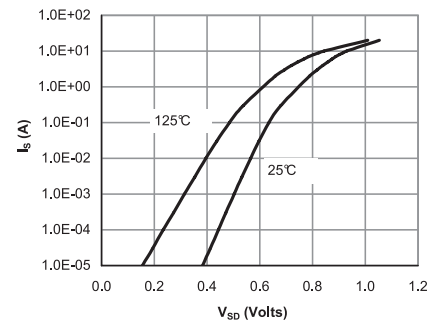


Figure 6: Body-Diode Characteristics (Note E)

Typical Characteristics

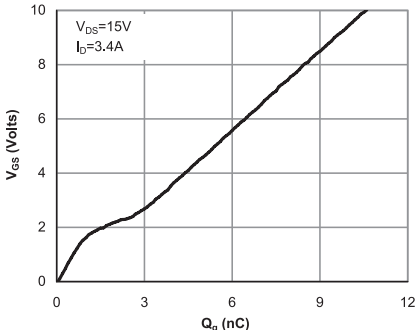


Figure 7: Gate-Charge Characteristics

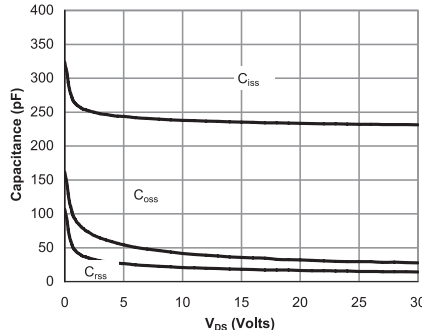


Figure 8: Capacitance Characteristics

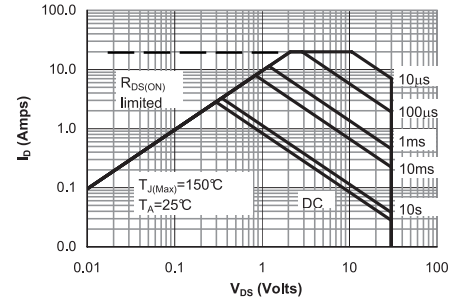


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

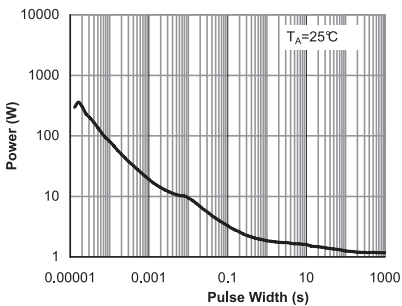


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

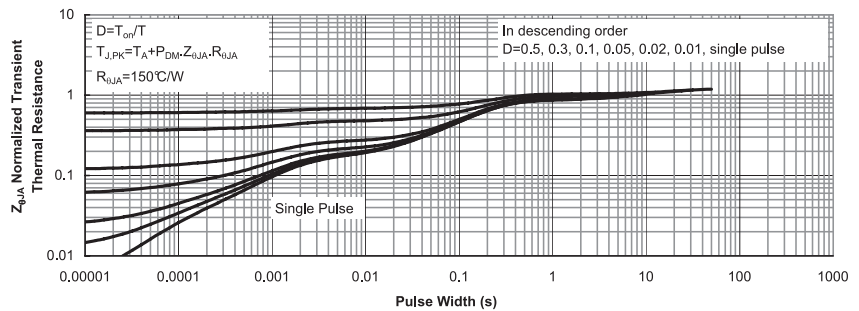
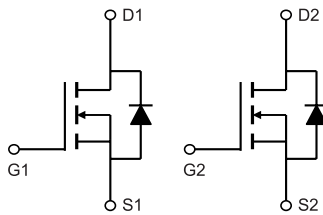
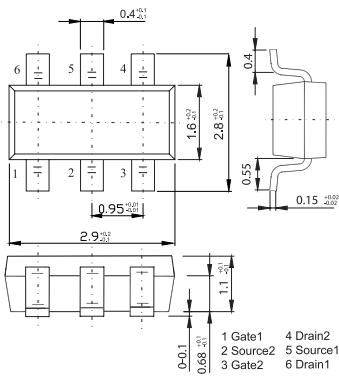


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

Diagram



Part Number Table

Description	Part Number
Dual Channel MOSFET, 3.4A, 30V	AO6800

Dimensions : Millimetres

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