

AO3400

30V N-Channel Enhancement-Mode MOSFET

VDS= 30V

RDS(ON), Vgs@10V, Ids@5.8A < 28mΩ

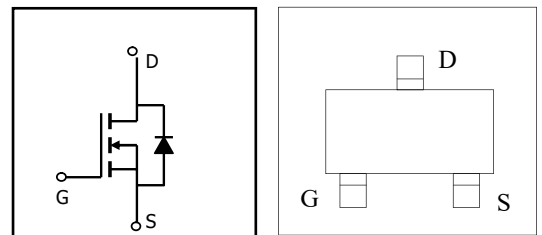
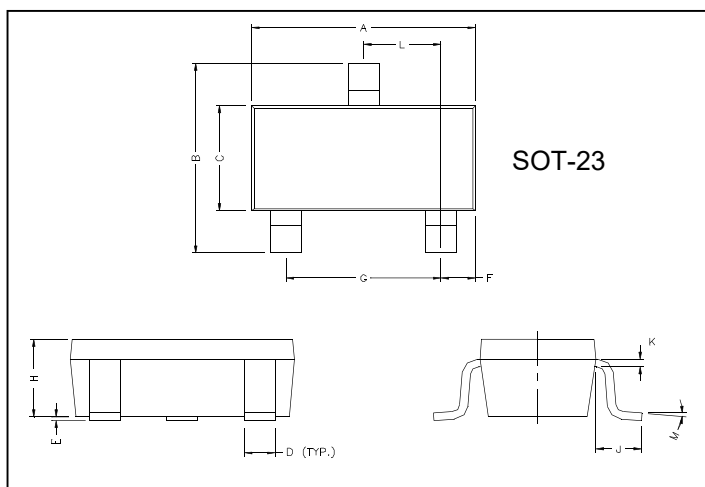
RDS(ON), Vgs@4.5V, Ids@5.0A < 33mΩ

RDS(ON), Vgs@2.5V, Ids@4.0A < 52mΩ

Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.1
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0	0.10	L	0.92	0.98
F	0.45	0.55	M	0C	10C

Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted)

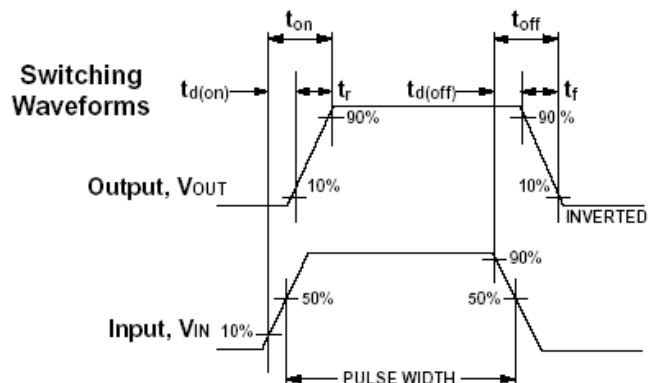
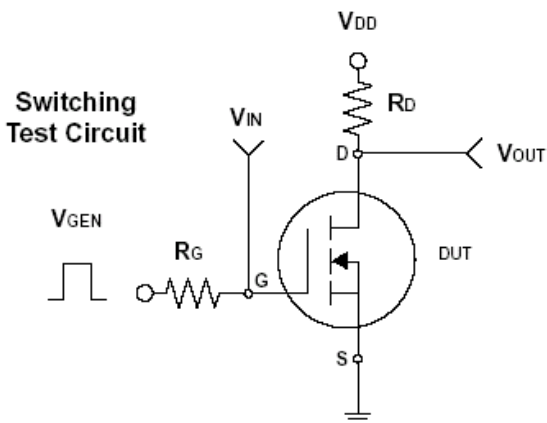
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	± 12	
Continuous Drain Current		I _D	5.8	A
Pulsed Drain Current		I _{DM}	30	
Maximum Power Dissipation	TA = 25°C	P _D	1.4	W
	TA = 75°C		1	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted)		R _{θJA}	145	°C/W

AO3400

ELECTRICAL CHARACTERISTICS (TA = 25oC unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Miax.	Unit
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 5.8A		25.0	28.0	mΩ
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D =5A		30.0	33.0	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 2.5V, I _D =4A		40.0	52.0	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = 250uA	0.7		1.4	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	uA
Gate Body Leakage	I _{GSS}	V _{GS} = ± 12V, V _{DS} = 0V			±100	nA
Forward Transconductance	g _{fs}	V _{DS} = 5V, I _D = 5A	10	15	—	S
Gate Resistance	R _g	F=1.0MHz	6	7	7.5	Ω
Dynamic						
Total Gate Charge	Q _g	V _{DS} = 15V, I _D = 5.8A V _{GS} = 4.5V		11		nC
Gate-Source Charge	Q _{gs}			1.6		
Gate-Drain Charge	Q _{gd}			2.8		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15V, RL=2.7Ω I _D = 1A, V _{GEN} = 10V R _G = 3Ω		7		ns
Turn-On Rise Time	t _r			15		
Turn-Off Delay Time	t _{d(off)}			38		
Turn-Off Fall Time	t _f			3		
Input Capacitance	C _{iss}	V _{DS} = 10V, V _{GS} = 0V f = 1.0 MHz		340		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			33		
Source-Drain Diode						
Max. Diode Forward Current	I _S				1.6	A
Diode Forward Voltage	V _{SD}	I _S = 1.6A, V _{GS} = 0V			1.2	V

Note: Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$



AO3400

Characteristics Curve

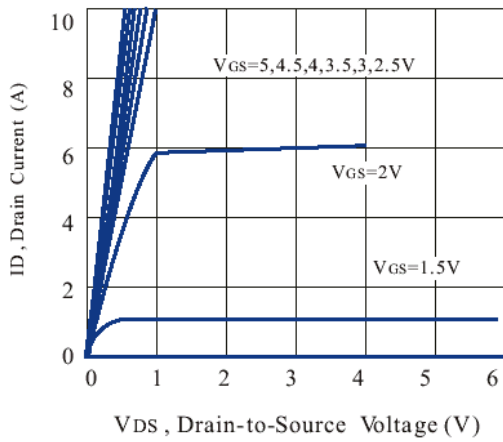


Figure 1. Output Characteristics

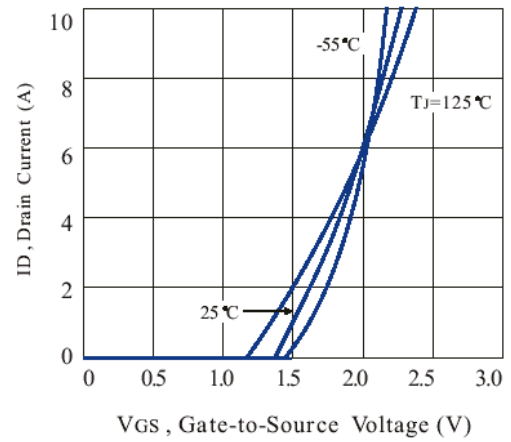


Figure 2. Transfer Characteristics

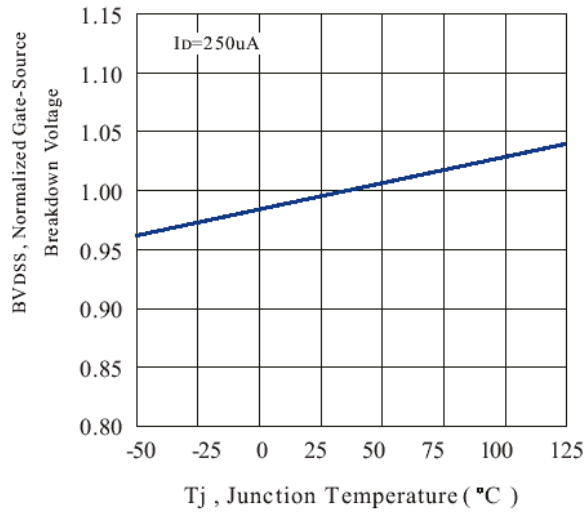


Figure 3. Breakdown Voltage Variation with Temperature

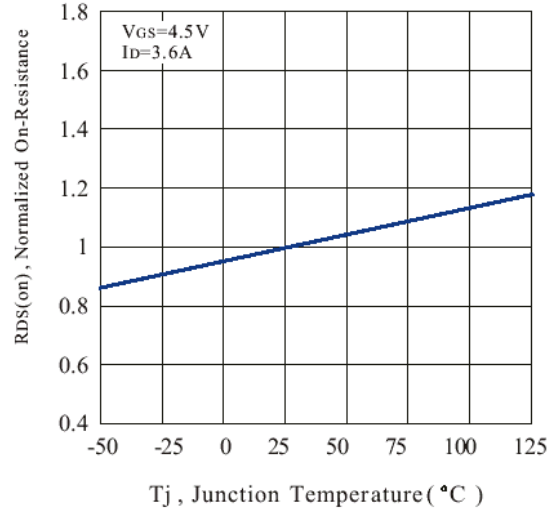


Figure 4. On-Resistance Variation with Temperature

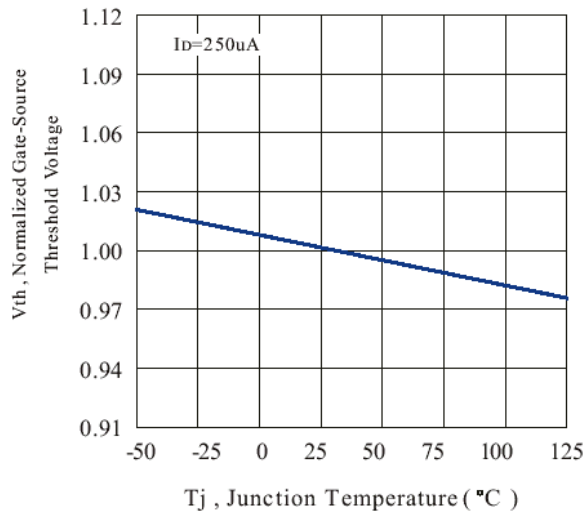


Figure 5. Gate Threshold Variation with Temperature

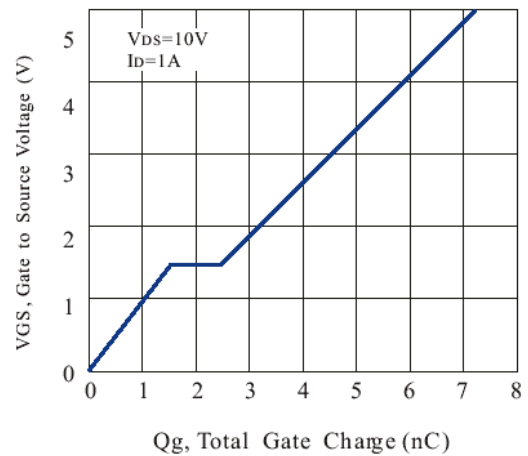


Figure 6. Gate Charge