

AO3400

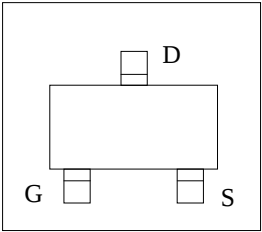
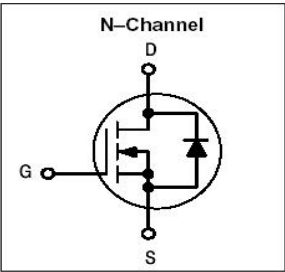
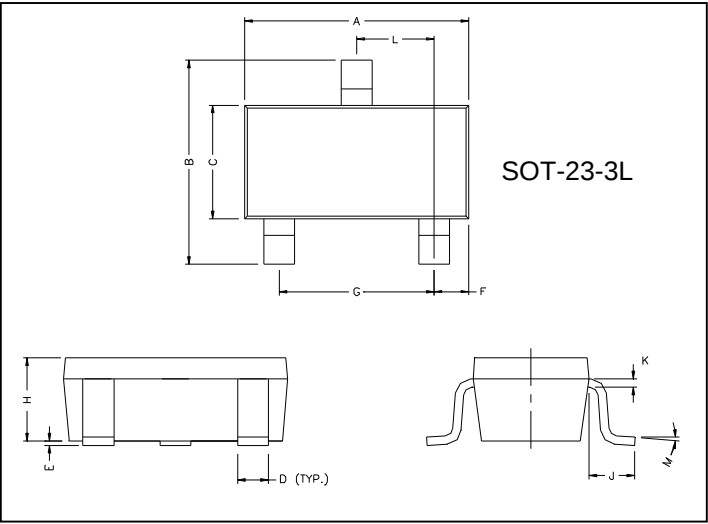
30V N-Channel Enhancement Mode MOSFET

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

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.65	2.95	H	1.00	1.30
C	1.50	1.70	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

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

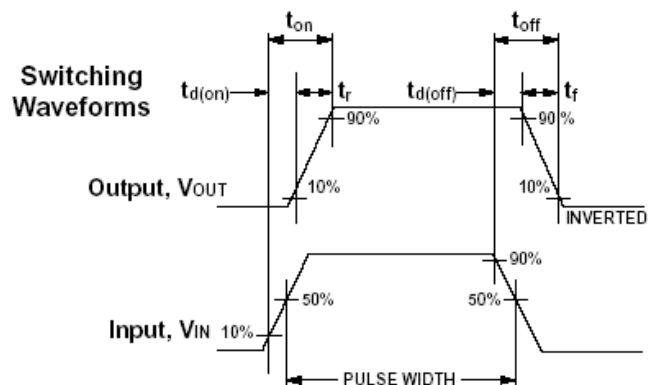
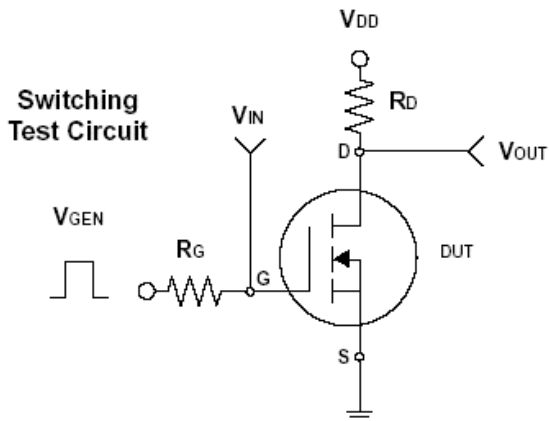
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	± 12	
Continuous Drain Current		I _D	5.8	A
Pulsed Drain Current		I _{DM}	30	
Maximum Power Dissipation	TA = 25°C	P _D	1.4	W
	TA = 75°C		1	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55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

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ELECTRICAL CHARACTERISTICS (TA = 25oC unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	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		22.0	28.0	mΩ
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D =5A		27.0	33.0	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 2.5V, I _D =4A		43.0	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	14	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, R _L =2.7Ω I _D = 1A, V _{GEN} = 10V R _G = 3Ω		7	11	ns
Turn-On Rise Time	t _r			15	20	
Turn-Off Delay Time	t _{d(off)}			38	50	
Turn-Off Fall Time	t _f			3	10	
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 $\leq 2\%$



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Characteristics Curve

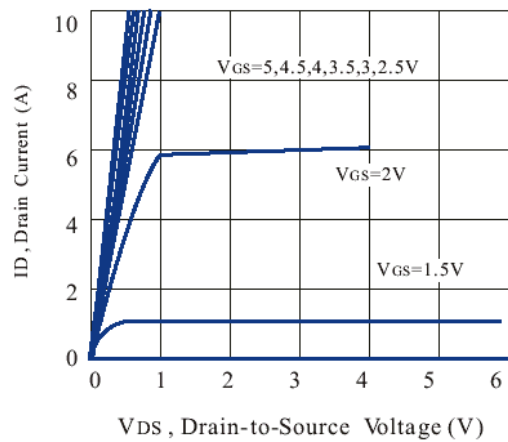


Figure 1. Output Characteristics

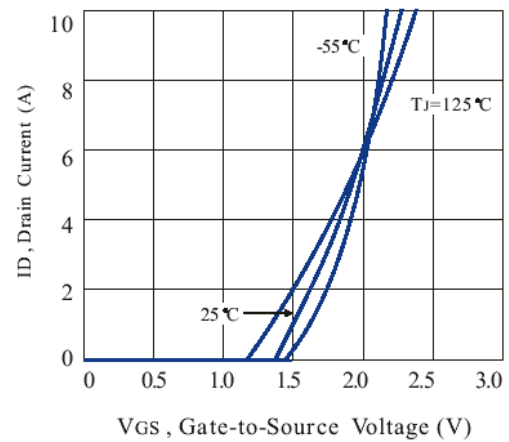


Figure 2. Transfer Characteristics

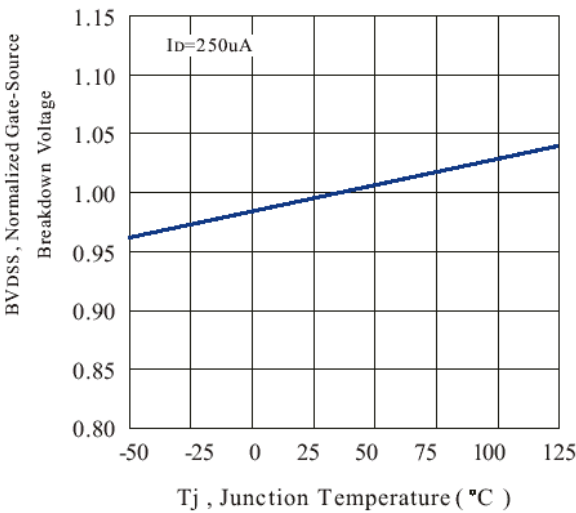


Figure 3. Breakdown Voltage Variation with Temperature

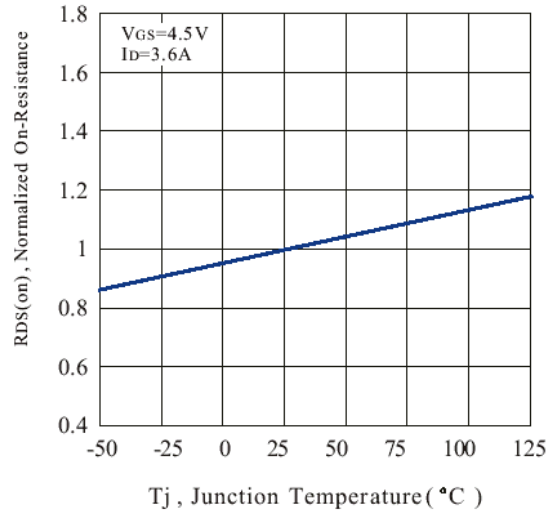


Figure 4. On-Resistance Variation with Temperature

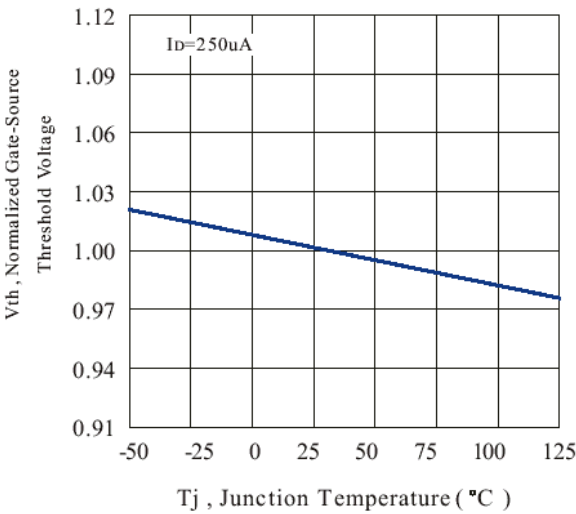


Figure 5. Gate Threshold Variation with Temperature

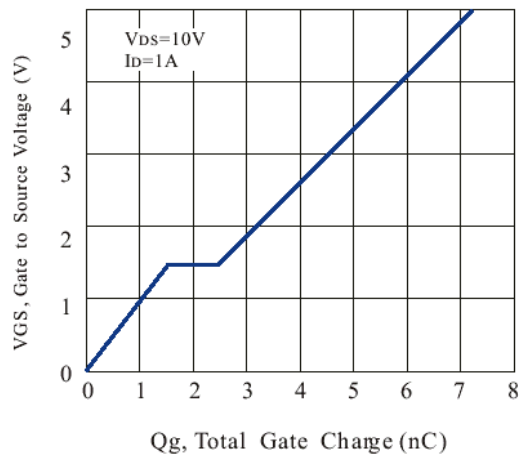


Figure 6. Gate Charge