

## N-Channel Enhancement Mode MOSFET

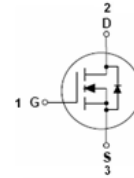
### Features

- Electrostatic sensitive devices
- $R_{DS(ON)} < 26.5m\Omega @ V_{GS} = 10V$
- $R_{DS(ON)} < 32m\Omega @ V_{GS} = 4.5V$
- $R_{DS(ON)} < 48m\Omega @ V_{GS} = 2.5V$

**HF**

### Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
AO3400	SOT-23	3000 pcs / Tape & Reel	A01T

### Maximum Ratings (@ $T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	$V_{DSS}$	30	V
Gate-to-Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current ( $T_A = 25^\circ C$ )	$I_D$	5.7	A
Continuous Drain Current ( $T_A = 70^\circ C$ )		4.7	A
Pulsed Drain Current	$I_{DM}$	25	A

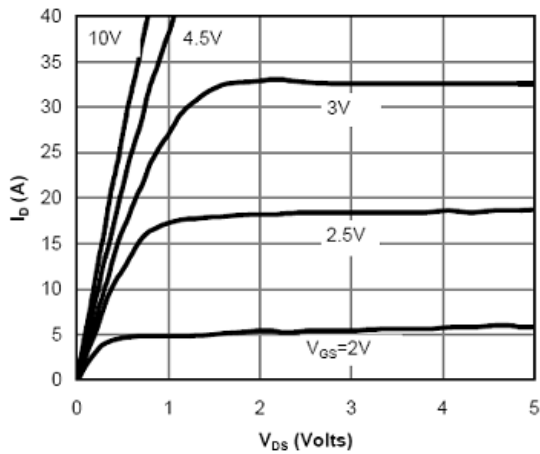
### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	1.4	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	89	$^\circ C/W$
Operating Junction Temperature Range	$T_J$	-55 ~ +150	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^\circ C$

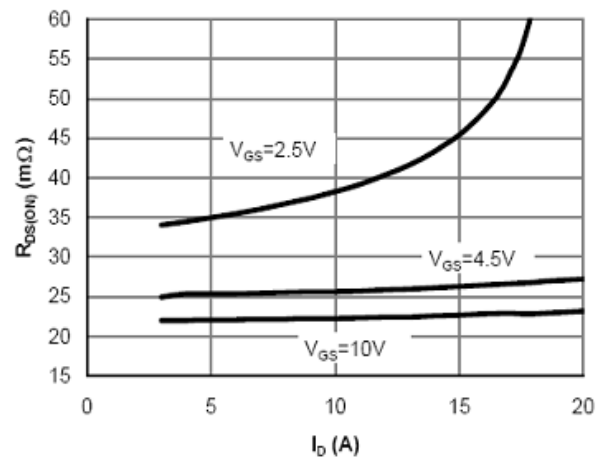
## Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
$V_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 30V, V_{GS} = 0V$	-	-	1	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 5.7A$	-	22	26.5	m $\Omega$
		$V_{GS} = 4.5V, I_D = 5A$	-	25.4	32	
		$V_{GS} = 2.5V, I_D = 3A$	-	34	48	
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.7	1.0	1.4	V
$g_{FS}$	Forward Transconductance	$V_{DS} = 5V, I_D = 5.7A$	-	26	-	S
<b>Dynamic Characteristics</b>						
$C_{ISS}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 15V$ $f = 1.0MHz$	-	900	-	pF
$C_{OSS}$	Output Capacitance		-	88	-	
$C_{RSS}$	Reverse Transfer Capacitance		-	65	-	
$Q_G$	Total Gate-Charge	$V_{GS} = 4.5V$ $V_{DS} = 15V$ $I_D = 5.7A$	-	10	-	nC
$Q_{GS}$	Gate to Source Charge		-	1.8	-	
$Q_{GD}$	Gate to Drain (Miller) Charge		-	3.75	-	
$t_{d(ON)}$	Turn-on Delay Time	$V_{GS} = 10V$ $V_{DD} = 15V$ $R_L = 2.6\Omega$ $R_G = 3\Omega$	-	3.2	-	ns
$t_r$	Turn-on Rise Time		-	3.5	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	21.5	-	
$t_f$	Turn-Off Fall Time		-	2.7	-	
<b>Source-Drain Diode Characteristics</b>						
$V_{SD}$	Diode Forward Voltage	$I_S = 1A, V_{GS} = 0V$	-	0.72	1.0	V
$I_S$	Maximum Body-Diode Continuous Current		-	-	2	A
$t_{rr}$	Body Diode Reverse Recovery Time	$I_F = 5.7A$ $di/dt = 100A / \mu s$	-	16.8	20	nS
$Q_{rr}$	Body Diode Reverse Recovery Charge	$I_F = 5.7A$ $di/dt = 100A / \mu s$	-	8	-	nC

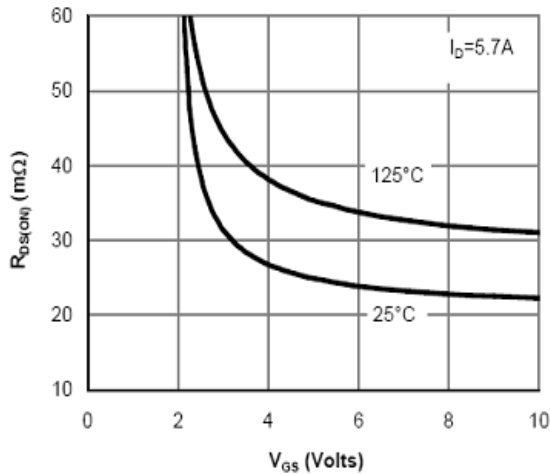
## Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)



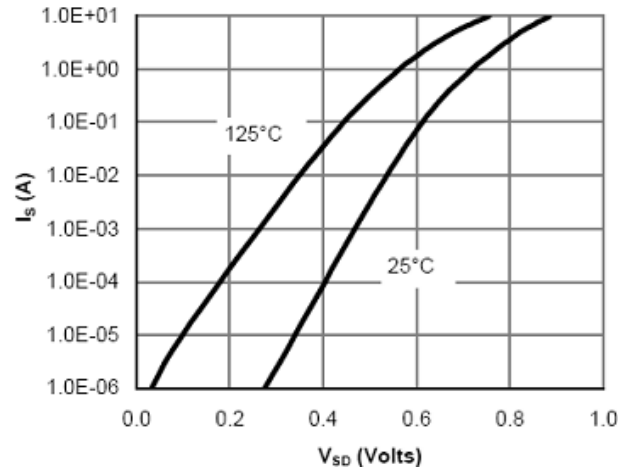
**Fig 1 On-Region Characteristics**



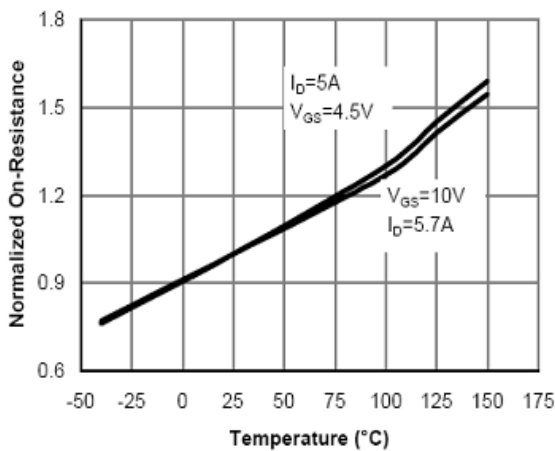
**Fig 2 On-Resistance vs. Drain Current and Gate Voltage**



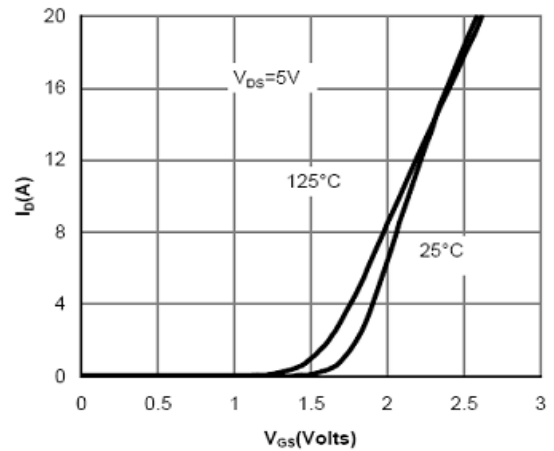
**Fig 3 On-Resistance vs. Gate-Source Voltage**



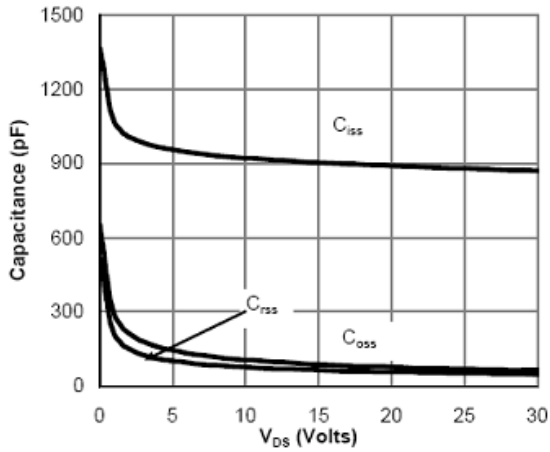
**Fig 4 Body-Diode Characteristics**



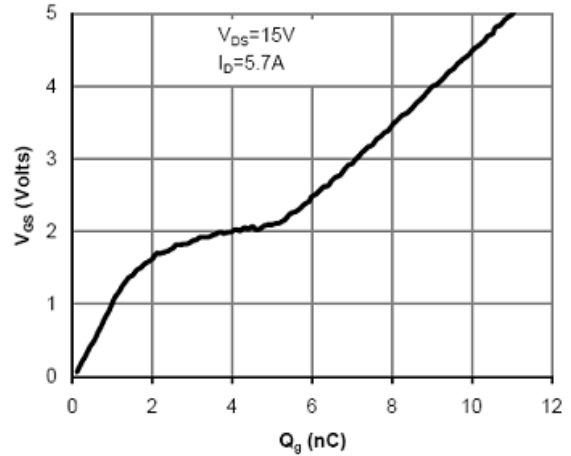
**Fig 5 On-Resistance vs. Junction Temperature**



**Fig 6 Transfer Characteristics**

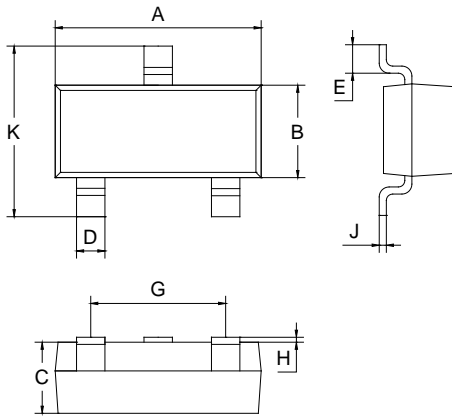


**Fig 7 Capacitance Characteristics**



**Fig 8 Gate-charge Characteristics**

## Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

## Package Outline Dimensions (Unit: mm)

### SOT-23

