N-Channel Enhancement Mode MOSFET

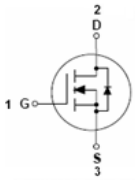
Features

HF

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

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
YT3400	SOT-23	3000 pcs / Tape & Reel	A01T

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	30	V
Gate-to-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current (T_A = 25°C)	I_D	5.7	A
Continuous Drain Current (T_A = 70°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	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 10V, I_D = 5.7A	-	22	26.5	mΩ
		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 = 250μA	0.7	1.0	1.4	V
g_{FS}	Forward Transconductance	V_{DS} = 5V, I_D = 5.7A	-	26	-	S
Dynamic Characteristics						
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 = 2.6Ω R_G = 3Ω	-	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	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_S = 1A, V_{GS} = 0 V	-	0.72	1.0	V
I_S	Maximum Body-Diode Continuous Current		-	-	2	A
trr	Body Diode Reverse Recovery Time	I_F = 5.7A d_I/dt = 100A / μs	-	16.8	20	nS
Qrr	Body Diode Reverse Recovery Charge	I_F = 5.7A d_I/dt = 100A / μs	-	8	-	nC

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

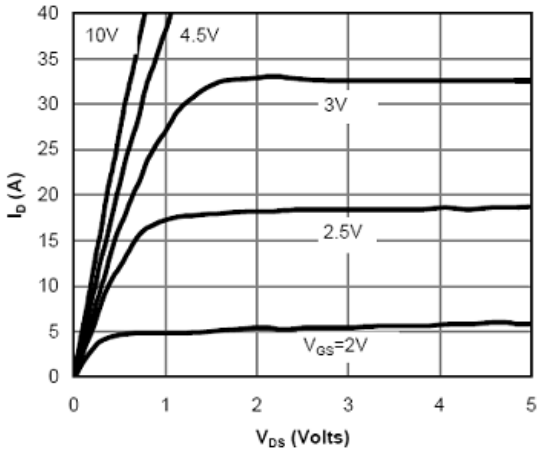


Fig 1 On-Region Characteristics

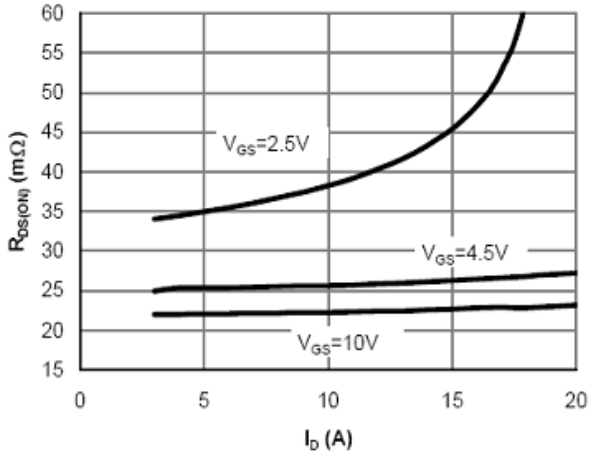


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

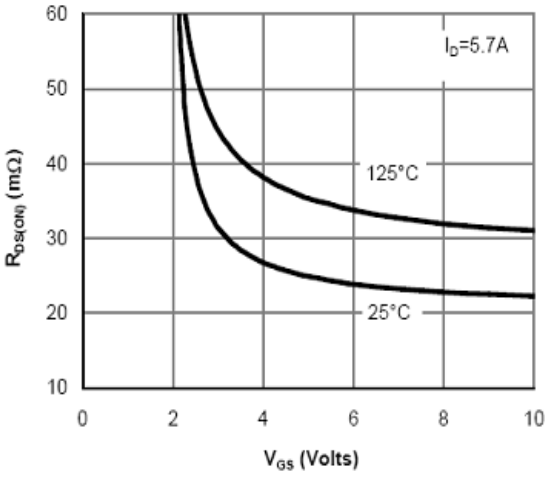


Fig 3 On-Resistance vs. Gate-Source Voltage

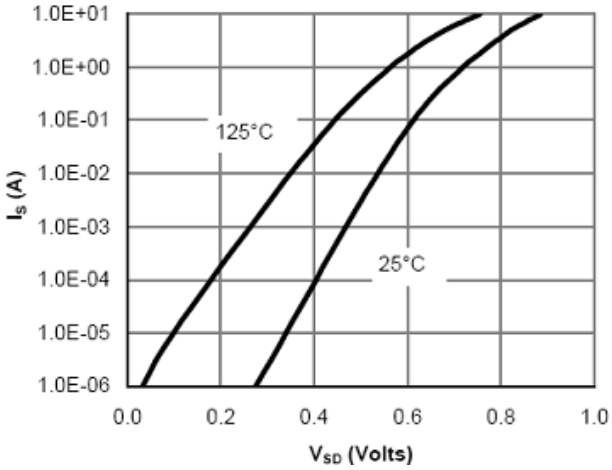


Fig 4 Body-Diode Characteristics

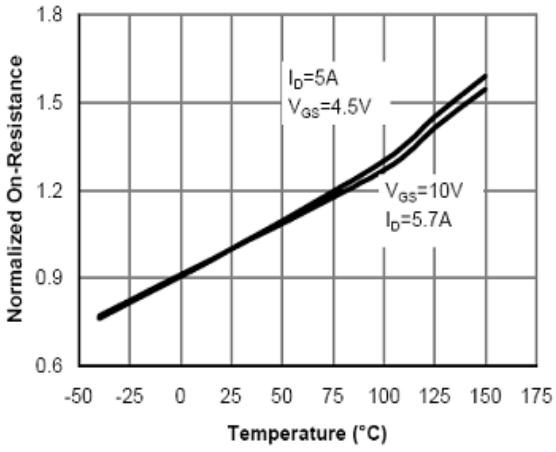


Fig 5 On-Resistance vs. Junction Temperature

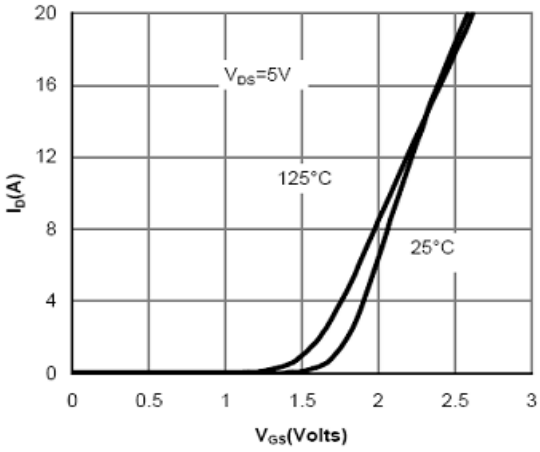


Fig 6 Transfer Characteristics

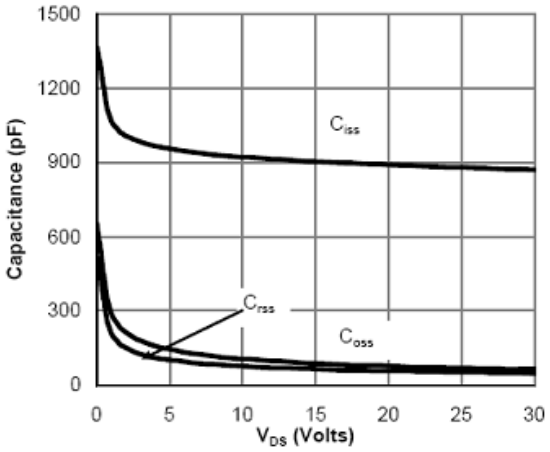


Fig 7 Capacitance Characteristics

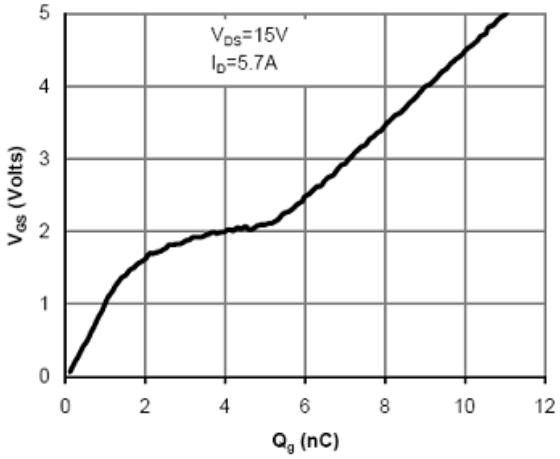
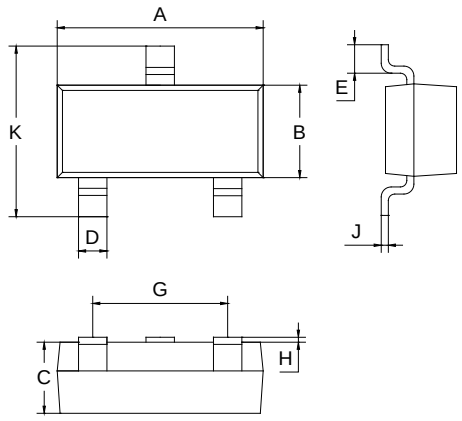
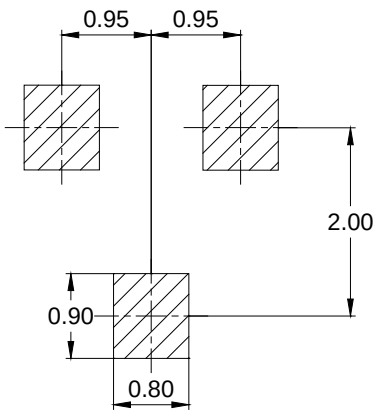


Fig 8 Gate-charge Characteristics

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