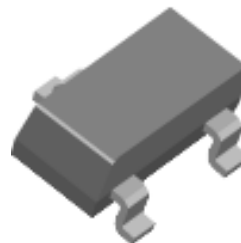


GWS2302 – 20V N-Channel Enhancement-Mode MOSFET

VDS= 20V

RDS(ON), Vgs=4.5V, Ids=3.6A = 65mΩ

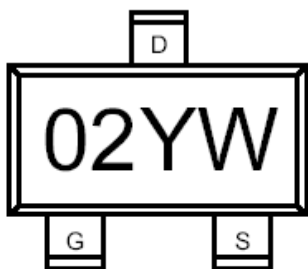
RDS(ON), Vgs=2.5V, Ids=3.1A = 95mΩ



Features

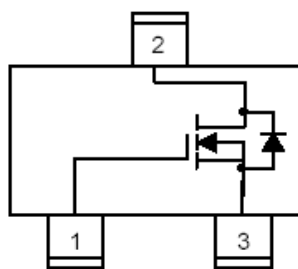
- Advanced trench process technology
- High Density Cell Design for Ultra Low On-resistance
- SOT-23 Package for excellent thermal and electrical capabilities
- Compact and low profile

TO-236AB (SOT-23)



Top View

Internal Schematic Diagram



N-Channel MOSFET

Absolute Maximum Ratings

TA=25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
VDS	Drain-Source Voltage	20	V
VGS	Gate-Source Voltage	± 8	V
ID	Drain Current	– Continuous	A
		– Pulsed	
IS	Continuous Source Current (Diode Conduction)	1.6	
PD	Power Dissipation (Steady State)	1.25	W
TJ, TSTG	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics

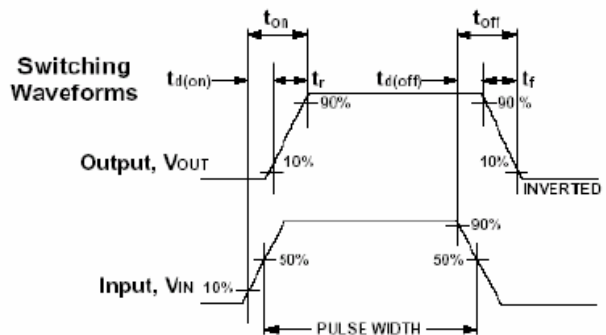
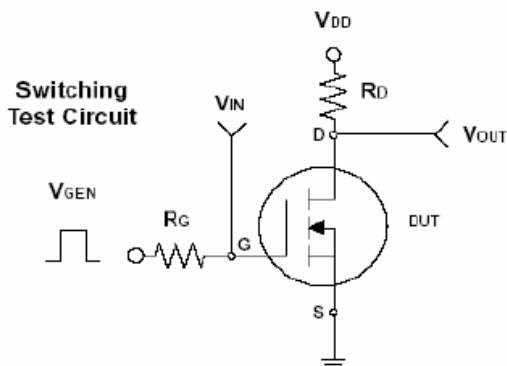
RθJA	Thermal Resistance, Junction-to-Ambient	100	°C/W
	(Surface mounted on 1" square layer 1oz. copper FR-4 board, t ≤ 5 sec.)		

Electrical Characteristics

TA=25°C unless otherw ise specified

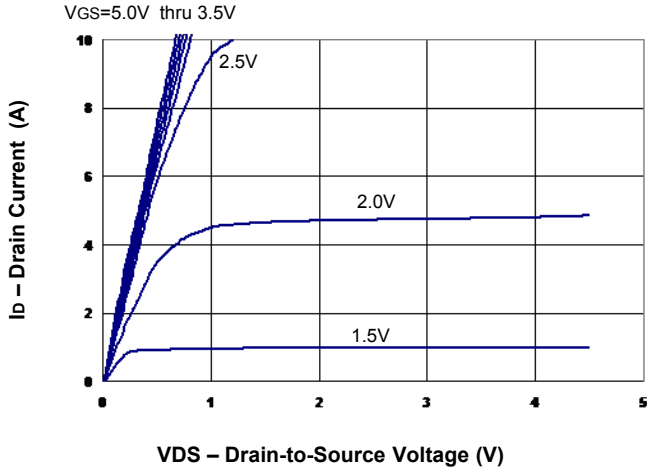
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V _{(BD)SS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1.0	μA
I _{GSS}	Gate-Body Leakage	V _{GS} =±8V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.45			V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =4.5V, I _D =3.6A		50	65	mΩ
	Drain-Source On-State Resistance	V _{GS} =2.5V, I _D =3.1A		75	95	mΩ
I _{D(on)}	On-State Drain Current	V _{DS} ≥ 5V, V _{GS} =4.5V	6			A
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =3.6A		10		S
C _{iss}	Input Capacitance	V _{DS} =10V, V _G =0V, F=1MHZ		450		pF
C _{oss}	Output Capacitance			70		pF
C _{rss}	Reverse Transfer Capacitance			43		pF
t _{d(on)}	Turn-On Delay Time	V _{DD} =10V, R _L =10Ω I _D =1A, V _{GEN} =4.5V R _G =6Ω		7	15	ns
t _r	Turn-On Rise Time			55	80	ns
t _{d(off)}	Turn-Off Delay Time			16	60	ns
t _f	Turn-Off Fall Time			10	25	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, I _D =3.6A, V _{DS} =10V		5.2	10	nC
Q _{gs}	Gate Source-Charge			0.65		nC
Q _{gd}	Gate Drain-Charge			1.5		nC
I _S	Max. Diode Forward Current				1.6	A
V _{SD}	Diode Forward Voltage	I _S =1.0A, V _{GS} =0V		0.75	1.2	V

Note: Pulse test: pulse width <= 300us, duty cycle<= 2%

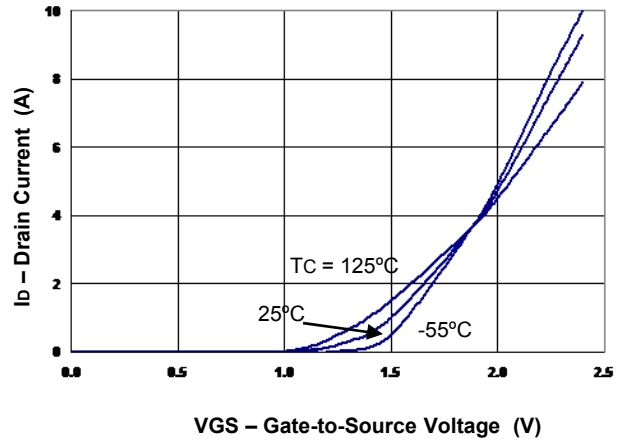


TYPICAL CHARACTERISTICS (25° C UNLESS NOTED)

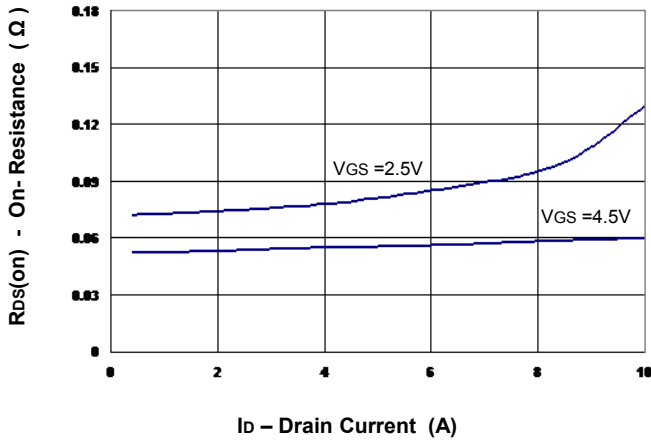
Output Characteristics



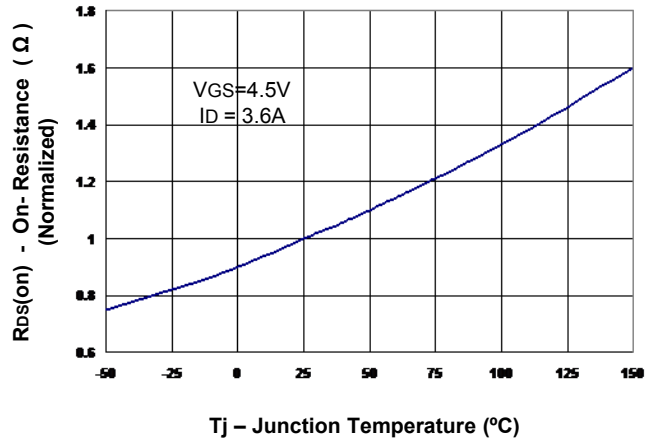
Transfer Characteristics



On - Resistance vs. Drain Current

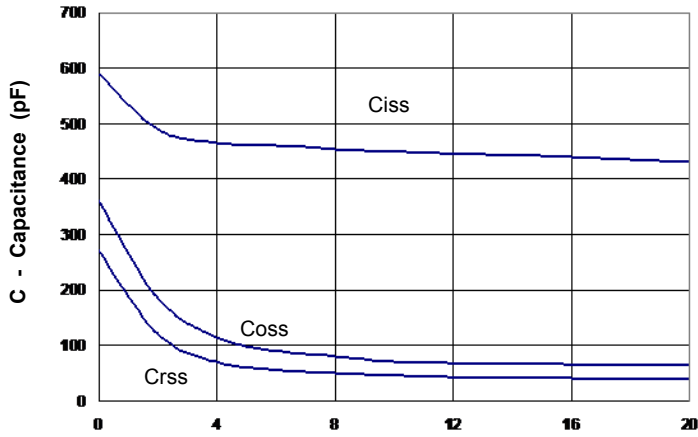


On - Resistance vs. Junction Temperature



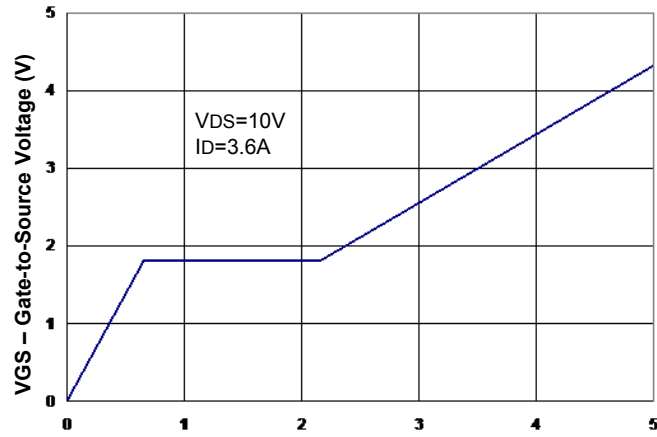
TYPICAL CHARACTERISTICS (25° C UNLESS NOTED)

Capacitance



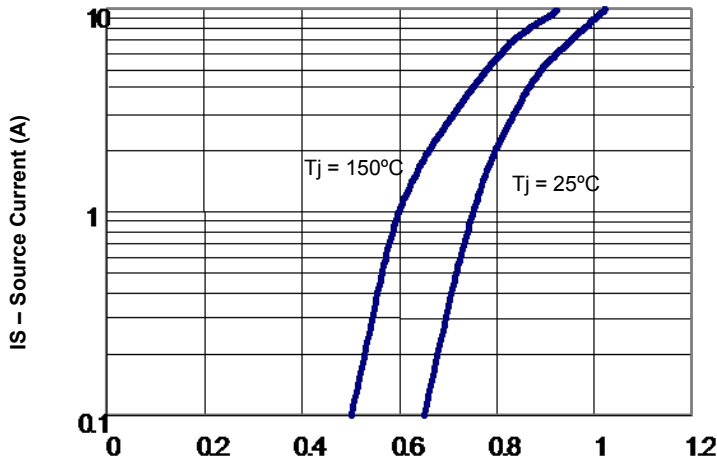
VDS – Drain-to-Source Voltage (V)

Gate Charge



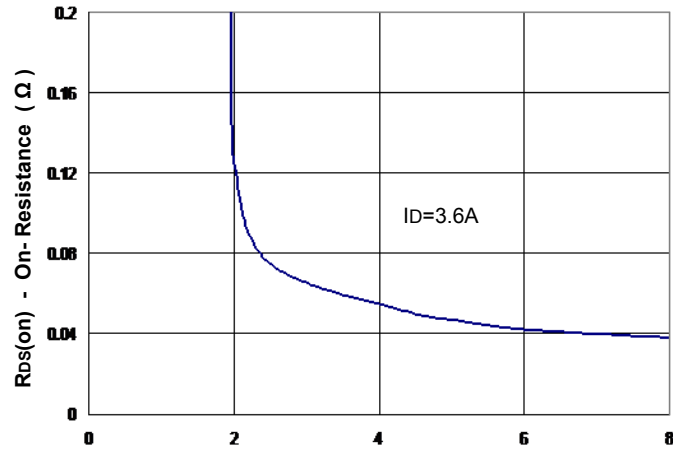
Total Gate Charge (nC)

Source – Drain Diode Forward Voltage Drop



VSD – Source-to-Drain Voltage (V)

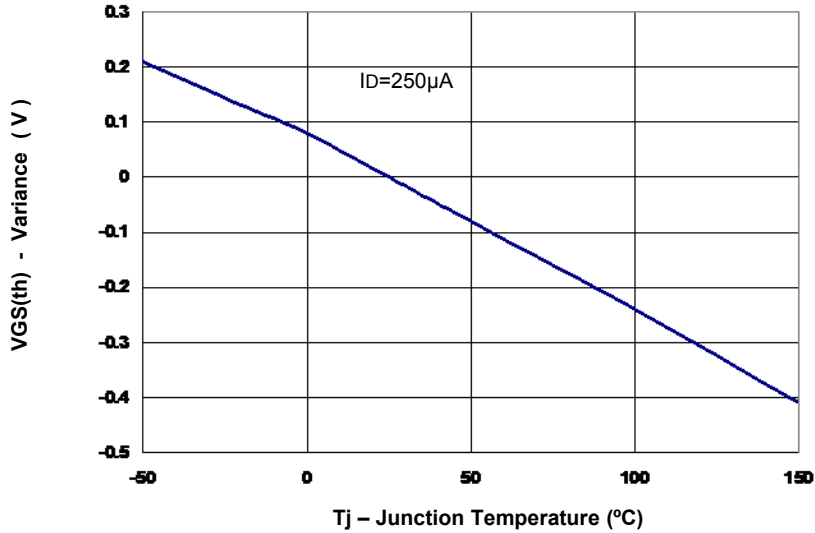
On – Resistance vs. Gate-to-Source Voltage



VGS – Gate-to-Source Voltage (V)

TYPICAL CHARACTERISTICS (25° C UNLESS NOTED)

On – Resistance vs. Junction Temperature



Normalized Thermal Transient Impedance, Junction-to-Ambient

