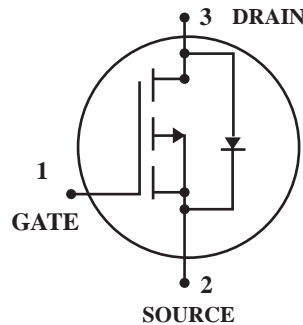


P-Channel Enhancement Mode Power MOSFET

 Lead(Pb)-Free



DRAIN CURRENT
-3.5 AMPERES

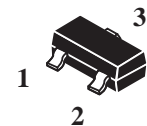
DRAIN SOURCE VOLTAGE
-8 VOLTAGE

Features:

- *Super High Dense Cell Design For Low $R_{DS(ON)}$
 $R_{DS(ON)} < 68m\Omega @ V_{GS} = -4.5V$
- *Rugged and Reliable
- *Simple Drive Requirement
- *SOT-23 Package

Applications

- *Power Management in Notebook Computer
- *Portable Equipment
- *Battery Powered System



SOT-23

Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-8	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ³ , ($T_A = 25^\circ C$)	I_D	-3.5	A
Pulsed Drain Current ^{1,2}	I_{DM}	-12	
Total Power Dissipation ($T_A = 25^\circ C$)	P_D	225	mW
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~ +150	$^\circ C$

Device Marking

WTC2305 = P5S

Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
Static						
Drain-Source Breakdown Voltage $V_{GS}=0, I_D=-250\mu\text{A}$	$V_{(BR)DSS}$	-8	-	-	V	
Gate-Source Threshold Voltage $V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	$V_{GS(Th)}$	-0.45	-	-0.8		
Gate-Source Leakage Current $V_{GS} = \pm 8\text{V}$	I_{GSS}	-	-	± 100	nA	
Drain- Source Leakage Current ($T_j=25^\circ\text{C}$) $V_{DS}=-6.4\text{V}, V_{GS}=0$	I_{DSS}	-	-	1	μA	
Drain-Source On-Resistance ² $V_{GS}=-4.5\text{V}, I_D=-3.5\text{A}$ $V_{GS}=-2.5\text{V}, I_D=-3.0\text{A}$ $V_{GS}=-1.8\text{V}, I_D=-2.0\text{A}$	$R_{DS(on)}$	-	47 55 67	68 81 118	m Ω	
Forward Transconductance $V_{DS}=-5.0\text{V}, I_D=-3.5\text{A}$	g_{fs}	-	8.5	-		S
On-State Drain Current ² $V_{DS}=-5\text{V}, V_{GS}=-4.5\text{V}$ $V_{DS}=-5\text{V}, V_{GS}=-2.5\text{V}$	$I_{D(ON)}$	-6 -3	- -	- -		A

Dynamic

Turn-On Delay Time $V_{DD} = -4\text{V}, R_L = 4\Omega, I_D = -1\text{A}, V_{GEN} = -4.5\text{V}, R_G = 6\Omega$	$t_{d(on)}$		13	20	ns
Turn-On Rise Time $V_{DD} = -4\text{V}, R_L = 4\Omega, I_D = -1\text{A}, V_{GEN} = -4.5\text{V}, R_G = 6\Omega$	t_r		25	40	ns
Turn-Off Delay Time $V_{DD} = -4\text{V}, R_L = 4\Omega, I_D = -1\text{A}, V_{GEN} = -4.5\text{V}, R_G = 6\Omega$	$t_{d(off)}$		55	80	ns
Turn-Off Fall Time $V_{DD} = -4\text{V}, R_L = 4\Omega, I_D = -1\text{A}, V_{GEN} = -4.5\text{V}, R_G = 6\Omega$	t_f		19	35	ns
Input Capacitance $V_{DS} = -4\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{iss}		1245		pF
Output Capacitance $V_{DS} = -4\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{oss}		375		pF
Reverse Transfer Capacitance $V_{DS} = -4\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{rss}		210		pF

Source-Drain Diode

Max. Diode Forward Current	I_S			-1.6	A
Diode Forward Voltage $I_S = -1.6\text{A}, V_{GS} = 0\text{V}$	V_{SD}			-1.2	V

- Note:**
1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
 2. Static parameters are based on package level with recommended wire-bonding
 3. Guaranteed by design; not subject to production testing

TYPICAL ELECTRICAL CHARACTERISTICS

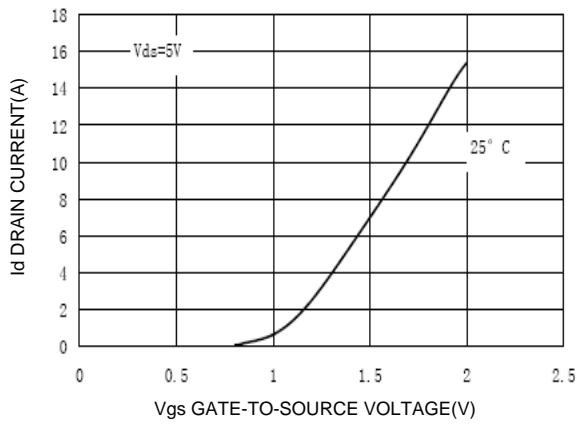


Figure 1. Transfer Characteristics

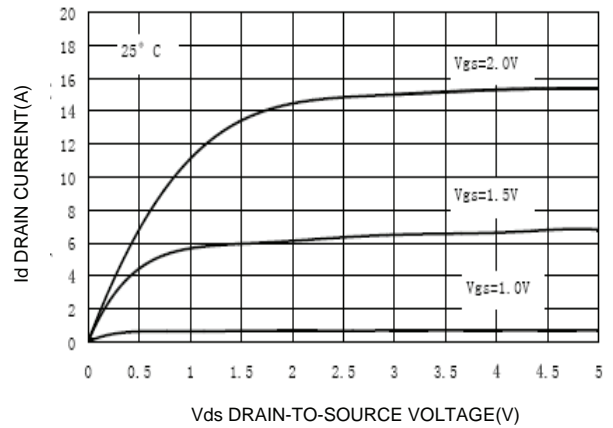


Figure 2. On-Region Characteristics

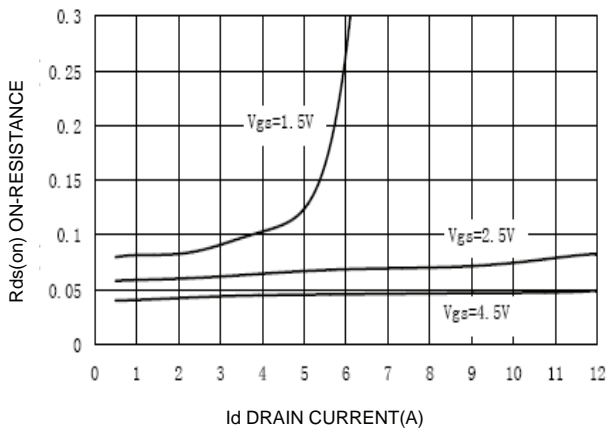


Figure 3. On-Resistance versus Drain Current

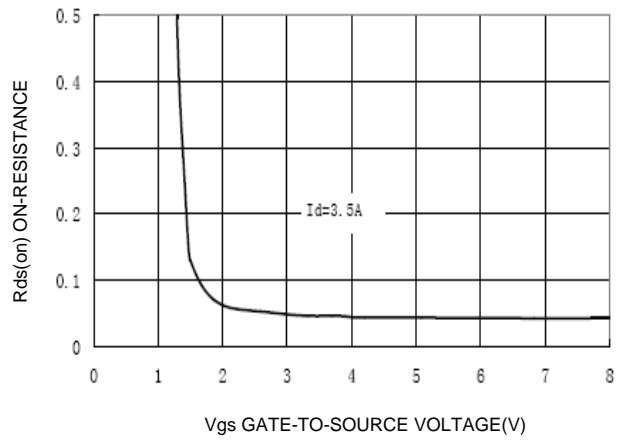


Figure 4. On-Resistance vs. Gate-to-Source Voltage

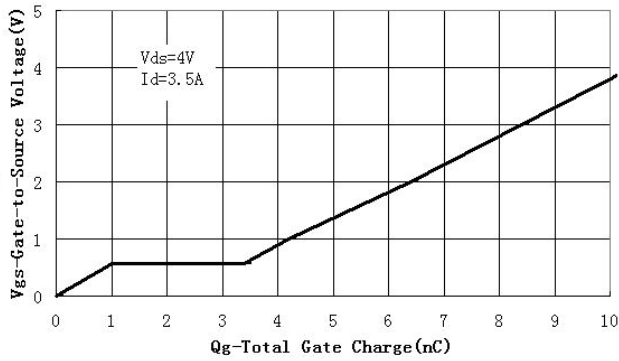


Figure 5. Gate Charge

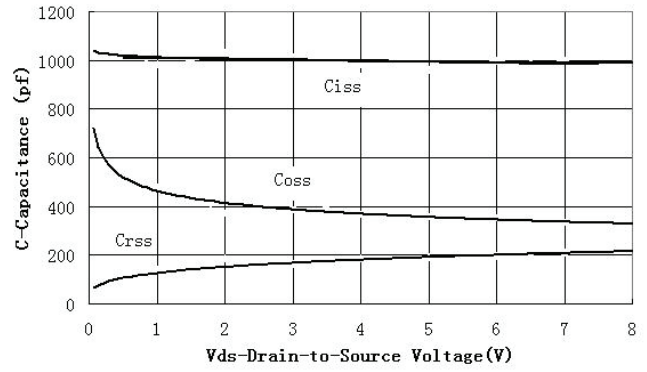


Figure 6. Capacitance

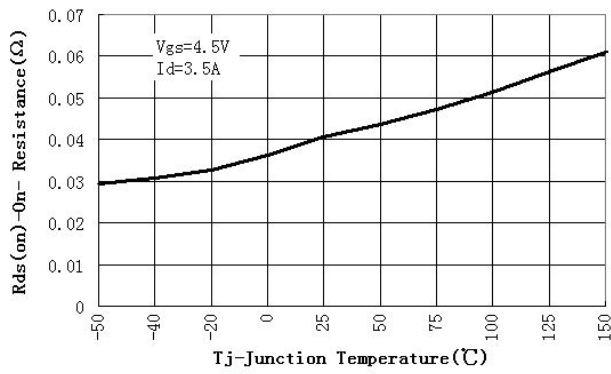


Figure 7. On-Resistance Vs. Junction Temperature

SOT-23 Outline Dimension

