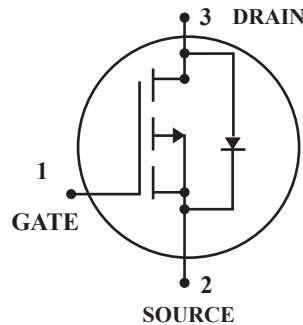


P-Channel Enhancement Mode Power MOSFET

 Lead(Pb)-Free

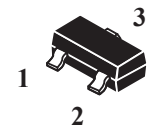


DRAIN CURRENT
-4.2 AMPERES

DRAIN SOURCE VOLTAGE
-30 VOLTAGE

Features:

- *Super High Dense Cell Design For Low $R_{DS(ON)}$
 $R_{DS(ON)} < 70m\Omega @ V_{GS} = 10V$
- *Rugged and Reliable
- *Simple Drive Requirement
- *SOT-23 Package



SOT-23

Applications

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

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

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current ³ , ($T_A = 25^\circ C$)	I_D	-4.2	A
Pulsed Drain Current ^{1,2}	I_{DM}	-30	
Total Power Dissipation ($T_A = 25^\circ C$)	P_D	1.4	W
Maximum Thermal Resistance Junction-ambient ³	$R_{\theta JA}$	140	$^\circ C/W$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ C$

Device Marking

WTC2305=PO5

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

Characteristic	Symbol	Min	Typ	Max	Unit
Static					
Drain-Source Breakdown Voltage $V_{GS}=0, I_D=-250\mu\text{A}$	$V_{(BR)DSS}$	-30	-	-	V
Gate-Source Threshold Voltage $V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	$V_{GS(Th)}$	-0.7	-	-1.3	
Gate-Source Leakage Current $V_{GS} = \pm 12\text{V}$	I_{GSS}	-	-	± 100	nA
Drain- Source Leakage Current ($T_j=25^\circ\text{C}$) $V_{DS}=-24\text{V}, V_{GS}=0$	I_{DSS}	-	-	-1	μA
Drain-Source On-Resistance ² $V_{GS}=-10\text{V}, I_D=-4.2\text{A}$ $V_{GS}=-4.5\text{V}, I_D=-4.0\text{A}$ $V_{GS}=-2.5\text{V}, I_D=-1.0\text{A}$	$R_{DS(on)}$	-	53 64 86	70 85 130	m Ω
Forward Transconductance $V_{DS}=-5.0\text{V}, I_D=-5.0\text{A}$	g_{fs}	7	11	-	

Dynamic

Total Gate Charge $V_{DS} = -15\text{V}, I_D = -4\text{A}, V_{GS} = -4.5\text{V}$	Q_g	-	6.36	-	nC
Gate-Source Charge $V_{DS} = -15\text{V}, I_D = -4\text{A}, V_{GS} = -4.5\text{V}$	Q_{gs}	-	1.79	-	nC
Gate-Drain Charge $V_{DS} = -15\text{V}, I_D = -4\text{A}, V_{GS} = -4.5\text{V}$	Q_{gd}	-	1.42	-	nC
Turn-On Delay Time $V_{DD} = -15\text{V}, R_L = 3.6\Omega, I_D = -1\text{A}, V_{GEN} = -10\text{V}, R_G = 6\Omega$	$t_{d(on)}$		11.36		ns
Turn-On Rise Time $V_{DD} = -15\text{V}, R_L = 3.6\Omega, I_D = -1\text{A}, V_{GEN} = -10\text{V}, R_G = 6\Omega$	t_r		2.32		ns
Turn-Off Delay Time $V_{DD} = -15\text{V}, R_L = 3.6\Omega, I_D = -1\text{A}, V_{GEN} = -10\text{V}, R_G = 6\Omega$	$t_{d(off)}$		34.88		ns
Turn-Off Fall Time $V_{DD} = -15\text{V}, R_L = 3.6\Omega, I_D = -1\text{A}, V_{GEN} = -10\text{V}, R_G = 6\Omega$	t_f		3.52		ns
Input Capacitance $V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{iss}		826.18		pF
Output Capacitance $V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{oss}		90.74		pF
Reverse Transfer Capacitance $V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$	C_{rss}		53.18		pF

Source-Drain Diode

Max. Diode Forward Current	I_S			-2.2	A
Diode Forward Voltage $I_S = -1.0\text{A}, V_{GS} = 0\text{V}$	V_{SD}			-1	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

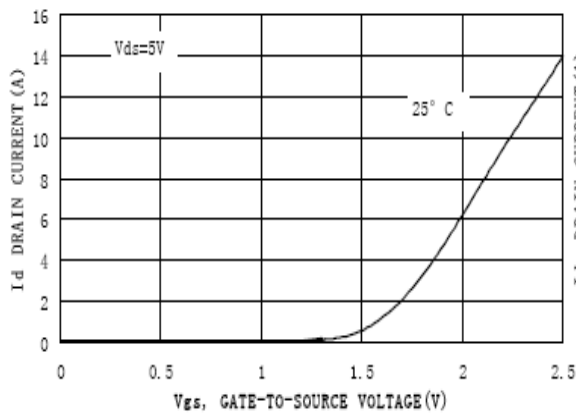


Figure 1. Transfer Characteristics

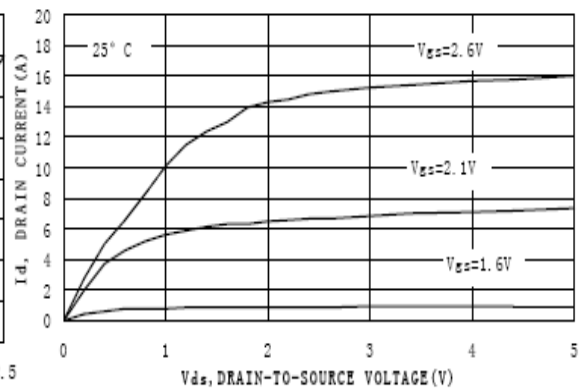


Figure 2. On-Region Characteristics

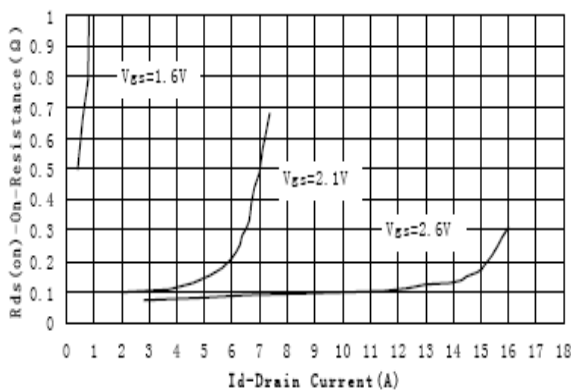


Figure 3. On-Resistance versus Drain Current

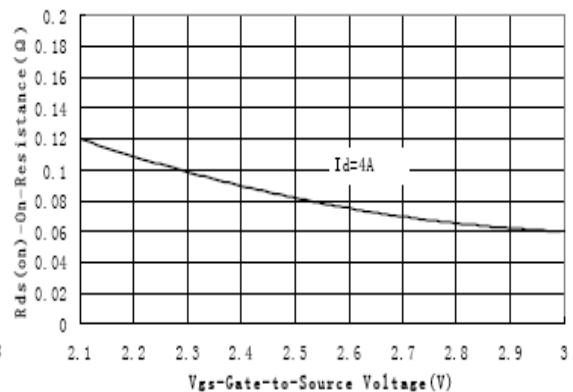


Figure 4. On-Resistance vs. Gate-to-Source Voltage

SOT-23 Outline Dimension

