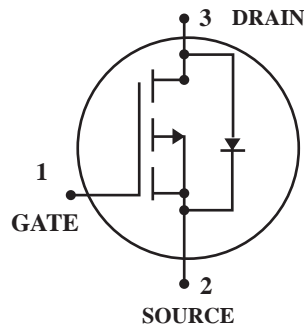


P-Channel Enhancement Mode Power MOSFET

 Lead(Pb)-Free



DRAIN CURRENT
-5.3 AMPERES

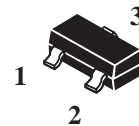
DRAIN SOURCE VOLTAGE
-30 VOLTAGE

Features:

- * Super High Dense Cell Design For Low $R_{DS(on)}$
 $R_{DS(on)} < 100m\Omega @ V_{GS} = -4.5V$
- * Rugged and Reliable
- * Simple Drive Requirement
- * SOT-23 Package

Applications:

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



SOT-23

Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5.3	A
Pulsed Drain Current ¹	I_{DM}	-20	A
Total Power Dissipation (TA=25°C) (TA=75°C)	P_D	2.5 1.2	W
Maximum Junction-Case	$R_{\theta JC}$	24	°C/W
Maximum Junction-Ambient ²	$R_{\theta JA}$	62.5	°C/W
Ambient Temperature	T_a	+150	°C
Case Temperature	T_c	+150	°C
Operating Junction Temperature Range	T_J	+150	°C
Storage Temperature Range	T_{stg}	-55~+150	°C

Note: 1. Repetitive Rating: Pulse width limited by the maximum junction temperature

2. 1-in2 2oz Cu PCB board

3. Guaranteed by design; not subject to production testing

Device Marking

WTC9435 = P94

Electrical Characteristics (TA=25°C Unless Otherwise Specified)

Characteristic	Symbol	Min	Typ	Max	Unit
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Static

Drain-Source Breakdown Voltage $V_{GS}=0V, I_D=-250\mu A$	$V_{(BR)DSS}$	-30	-	-	V
Gate-Source Threshold Voltage $V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1.0	-1.7	-3.0	V
Gate-Source Leakage Current $V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	-	-	± 100	nA
Zero Gate Voltage Drain Current $V_{DS}=-24V, V_{GS}=0V$	I_{DSS}	-	-	-1	μA
Drain-Source On-Resistance $V_{GS}=-4.5V, I_D=-4.2A$ $V_{GS}=-10V, I_D=-5.3A$	$R_{DS(on)}$	-	70 50	100 70	m Ω
Forward Transconductance $V_{DS}=-10V, I_D=-5.3A$	g_{fs}	-	10	-	S

Dynamic

Input Capacitance $V_{DS}=-15V, V_{GS}=0V, f=1MHz$	C_{iss}	-	745	-	PF
Output Capacitance $V_{DS}=-15V, V_{GS}=0V, f=1MHz$	C_{oss}	-	440	-	
Reverse Transfer Capacitance $V_{DS}=-15V, V_{GS}=0V, f=1MHz$	C_{rss}	-	120	-	

Switching

Turn-On Delay Time ⁽²⁾ $V_{DD}=-15V, I_D=-1A, V_{GEN}=-10V, R_G=6\Omega, R_L=15\Omega$	$t_{d(on)}$	-	9	-	nS
Rise Time $V_{DD}=-15V, I_D=-1A, V_{GEN}=-10V, R_G=6\Omega, R_L=15\Omega$	t_r	-	15	-	nS
Turn-Off Time $V_{DD}=-15V, I_D=-1A, V_{GEN}=-10V, R_G=6\Omega, R_L=15\Omega$	$t_{d(off)}$	-	75	-	nS
Fall Time $V_{DD}=-15V, I_D=-1A, V_{GEN}=-10V, R_G=6\Omega, R_L=15\Omega$	t_f	-	40	-	nS
Total Gate Charge ⁽²⁾ $V_{DS}=-15V, I_D=-5.3A, V_{GS}=-10V$	Q_g	-	28	-	nc
Gate-Source Charge $V_{DS}=-15V, I_D=-5.3A, V_{GS}=-10V$	Q_{gs}	-	3	-	nc
Gate-Drain Charge $V_{DS}=-15V, I_D=-5.3A, V_{GS}=-10V$	Q_{gd}	-	7	-	nc
Drain-Source Diode Forward Voltage ⁽²⁾ $V_{GS}=0V, I_S=-2.6A$	V_{SD}	-	-	-1.3	V
Continuous Source Current (Body Diode)	I_S	-	-	-2.6	A

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

3. Surface mounted on 1 in² copper pad of FR4 board; 125°C/W when mounted on Min. copper pad.

TYPICAL ELECTRICAL CHARACTERISTICS

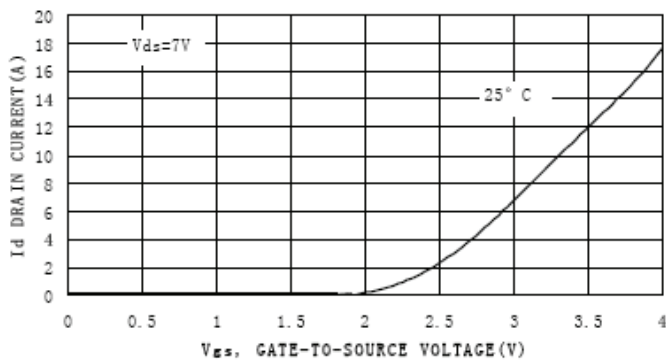


Figure 1. Transfer Characteristics

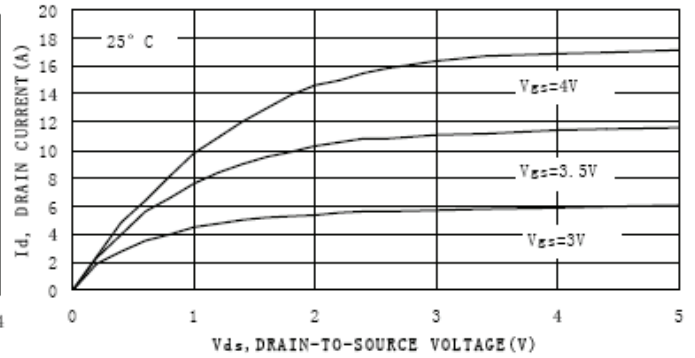


Figure 2. On-Region Characteristics

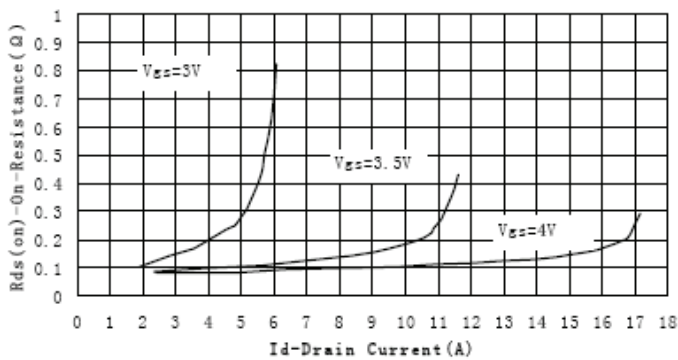


Figure 3. On-Resistance versus Drain Current

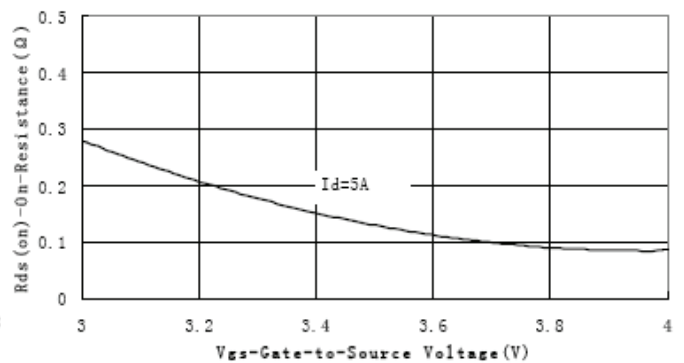


Figure 4. On-Resistance vs. Gate-to-Source Voltage

SOT-23 Outline Dimension

