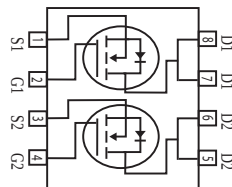


Surface Mount Dual N-Channel Enhancement Mode MOSFET

Pb Lead(Pb)-Free



DRAIN CURRENT
5 AMPERES
DRAIN SOURCE VOLTAGE
60 VOLTAGE

Features:

*Super high dense cell design for low $R_{DS(ON)}$

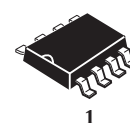
$$R_{DS(ON)} < 50m\Omega \text{ @ } V_{GS} = 10V$$

$$R_{DS(ON)} < 60m\Omega \text{ @ } V_{GS} = 4.5V$$

*Simple Drive Requirement

*Dual N MOSFET Package

*SO-8 Package



1

SO-8

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

Rating	Symbol	Value	Unite
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ⁽¹⁾ (TA=25°C) (TA=70°C)	I_D	5.0	A
		3.2	
Pulsed Drain Current ⁽²⁾	I_{DM}	30	A
Power Dissipation ⁽¹⁾ (TA=25°C)	P_D	2	W
Maximax Junction-to-Ambient ⁽¹⁾	$R_{\theta JA}$	62.5	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C

Device Marking

WTK9971=9971SS

WTK9971**WEITRON****Electrical Characteristics** ($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

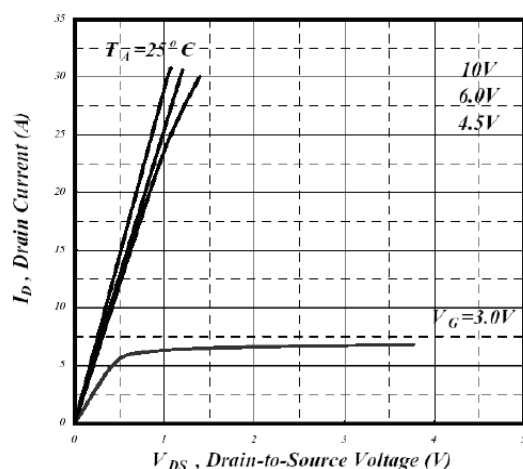
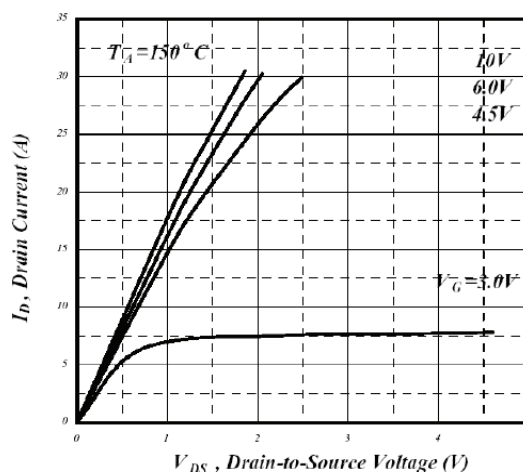
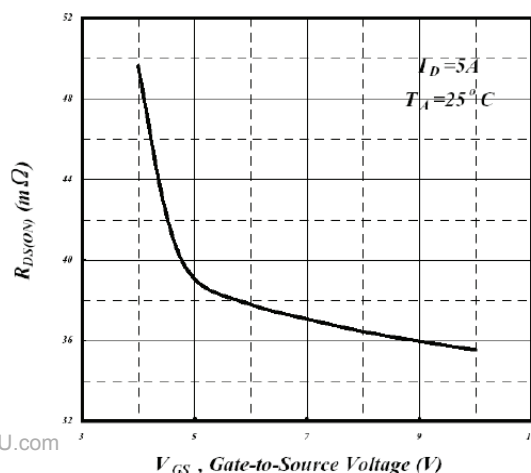
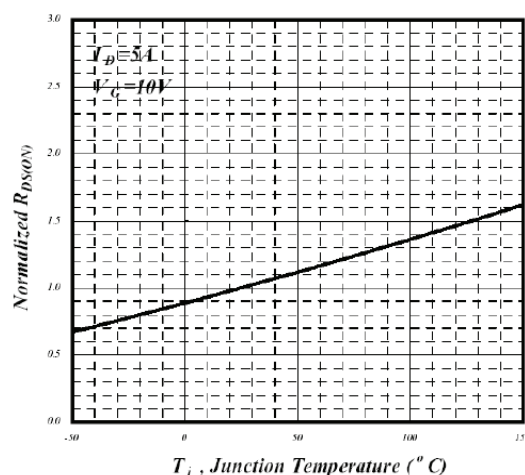
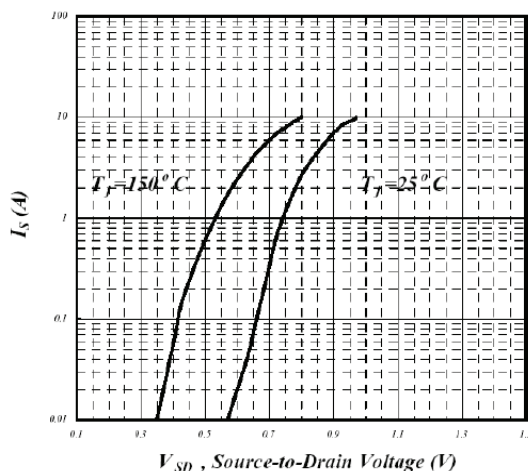
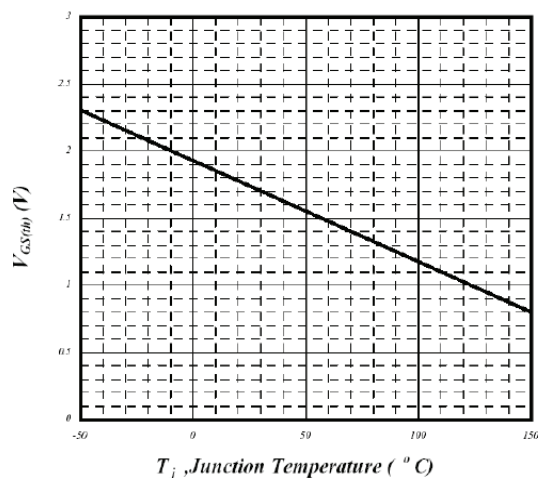
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	$V_{GS}=0$, $I_D=250\mu\text{A}$
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	0.06	-	$\text{V}/^{\circ}\text{C}$	Reference to 25°C , $I_D=1\text{mA}$
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	3.0	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Forward Transconductance	g_{fs}	-	7	-	S	$V_{DS}=10\text{V}$, $I_D=5\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}= \pm 25\text{V}$
Drain-Source Leakage Current($T_j=25^{\circ}\text{C}$)	I_{DSS}	-	-	1	μA	$V_{DS}=60\text{V}$, $V_{GS}=0$
Drain-Source Leakage Current($T_j=70^{\circ}\text{C}$)		-	-	25	μA	$V_{DS}=48\text{V}$, $V_{GS}=0$
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	-	-	50	m Ω	$V_{GS}=10\text{V}$, $I_D=5\text{A}$
		-	-	60		$V_{GS}=4.5\text{V}$, $I_D=2.5\text{A}$
Total Gate Charge ²	Q_g	-	32.5	-	nC	$I_D=5\text{A}$ $V_{DS}=48\text{V}$ $V_{GS}=10\text{V}$
Gate-Source Charge	Q_{gs}	-	4.9	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	8.8	-		
Turn-on Delay Time ²	$T_{d(on)}$	-	9.6	-	ns	$V_{DS}=30\text{V}$ $I_D=5\text{A}$ $V_{GS}=10\text{V}$ $R_G=3.3\Omega$ $R_D=6\Omega$
Rise Time	T_r	-	10	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	5.5	-		
Input Capacitance	C_{iss}	-	1658	-	pF	$V_{GS}=0\text{V}$ $V_{DS}=25\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	156	-		
Reverse Transfer Capacitance	C_{rss}	-	109	-		

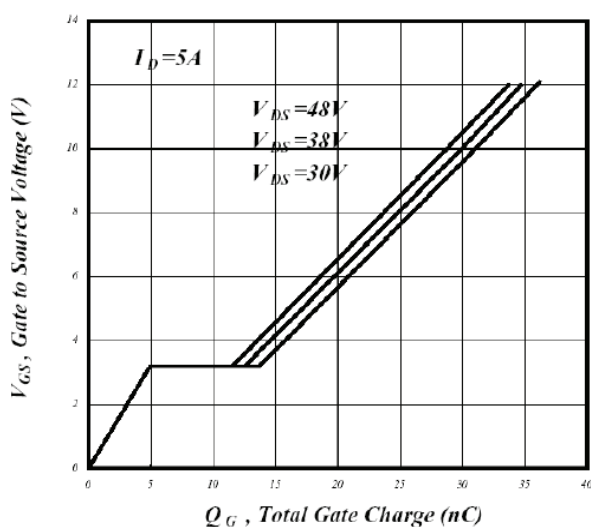
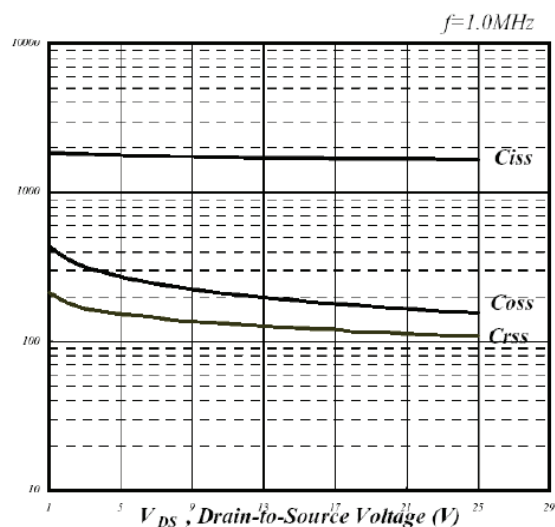
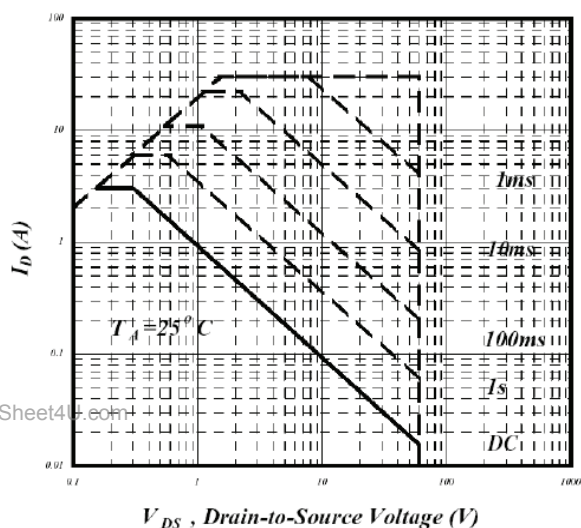
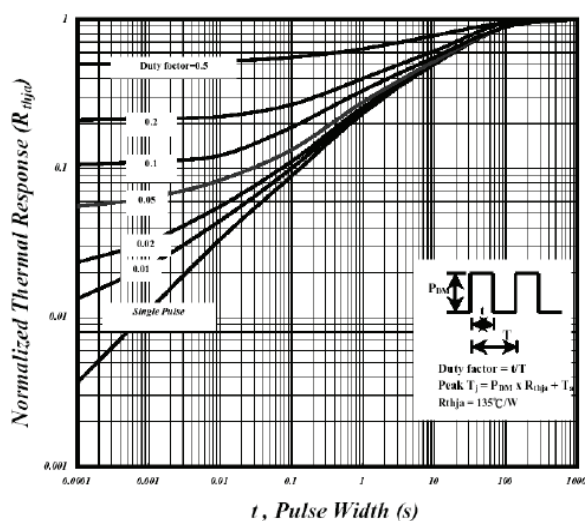
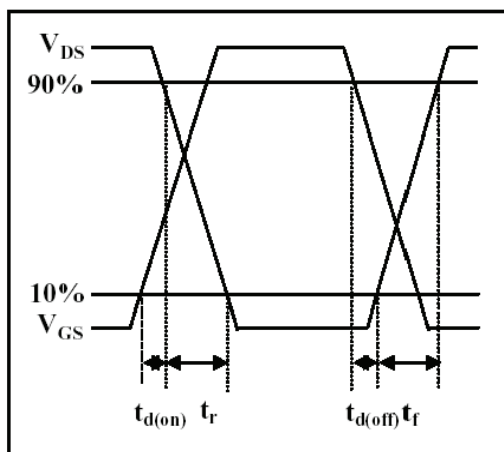
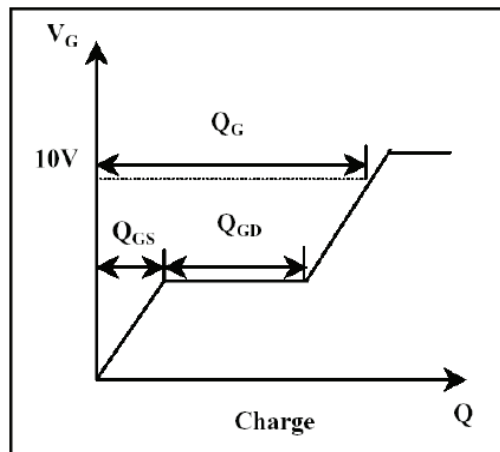
Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V_{SD}	-	-	1.2	V	$I_S=1.6\text{A}$, $V_{GS}=0\text{V}$
Reverse Recovery Time	T_{rr}	-	29.2	-	ns	$I_S=5\text{A}$, $V_{GS}=0\text{V}$ $di/dt=100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{rr}	-	48	-	nC	

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

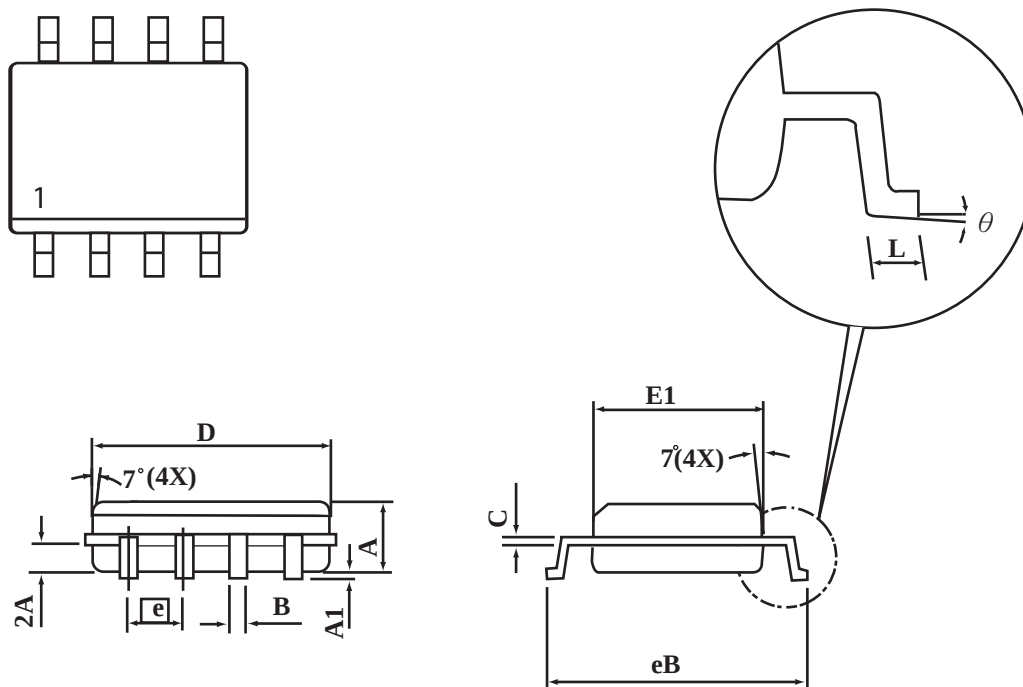
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.3. Surface mounted on 1 in² copper pad of FR4 board; $135^{\circ}\text{C}/\text{W}$ when mounted on Min. copper pad.

WTK9971**WEITRON****Characteristics Curve****Fig 1. Typical Output Characteristics****Fig 2. Typical Output Characteristics****Fig 3. On-Resistance v.s. Gate Voltage****Fig 4. Normalized On-Resistance v.s. Junction Temperature****Fig 5. Forward Characteristics of Reverse Diode****Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

WTK9971**WEITRON****Fig 7. Gate Charge Characteristics****Fig 8. Typical Capacitance Characteristics****Fig 9. Maximum Safe Operating Area****Fig 10. Effective Transient Thermal Impedance****Fig 11. Switching Time Waveform****Fig 12. Gate Charge Waveform**

WTK9971**WEITRON****SO-8 Package Outline Dimensions**

Unit:mm



SYMBOLS	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.20
B	0.35	0.45
C	0.18	0.23
D	4.69	4.98
E1	3.56	4.06
eB	5.70	6.30
e	1.27 BSC	
L	0.60	0.80
θ	0°	8°

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