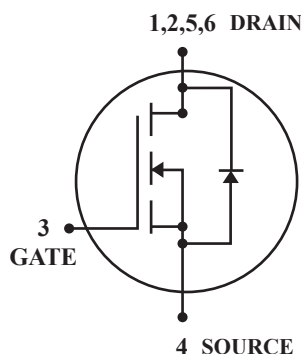


N-Channel Enhancement Mode Power MOSFET

(Pb) Lead(Pb)-Free



DRAIN CURRENT

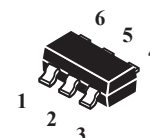
6.3 AMPERES

DRAIN SOURCE VOLTAGE

20 VOLTAGE

Features:

- *Super High Dense Cell Design For Low $R_{DS(ON)}$
 $R_{DS(ON)} < 34m\Omega @ V_{GS}=4.5V$
- *Rugged and Reliable
- *Capable of 2.5V Gate Drive
- *Simple Drive Requirement
- *SOT-26 Package



SOT-26

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

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current ³ , $V_{GS}@4.5V$, $T_A=25^\circ C$ $T_A=70^\circ C$	I_D	6.3	A
		5	
Pulsed Drain Current ^{1,2}	I_{DM}	30	
Total Power Dissipation($T_A=25^\circ C$)	P_D	2	W
Maximum Junction-ambient	$R\theta_{JA}$	62.5	$^\circ C/W$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ C$

Device Marking

WTL2602=2602

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

Characteristic	Symbol	Min	Typ	Max	Unit
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Static

Drain-Source Breakdown Voltage $V_{GS}=0, I_D=250\mu\text{A}$	BV_{DSS}	20	-	-	V
Gate-Source Threshold Voltage $V_{DS}=V_{GS}, I_D=250\mu\text{A}$	$V_{GS(Th)}$	0.5	-	-	
Gate-Source Leakage current $V_{GS}=\pm 12\text{V}$	I_{GSS}	-	-	± 100	nA
Drain-Source Leakage Current ($T_j=25^\circ\text{C}$) $V_{DS}=20\text{V}, V_{GS}=0$	I_{DSS}	-	-	1	μA
Drain-Source Leakage Current ($T_j=55^\circ\text{C}$) $V_{DS}=16\text{V}, V_{GS}=0$		-	-	10	
Drain-Source On-Resistance $V_{GS}=10\text{V}, I_D=5.5\text{A}$ $V_{GS}=4.5\text{V}, I_D=5.3\text{A}$ $V_{GS}=2.5\text{V}, I_D=2.6\text{A}$ $V_{GS}=1.8\text{V}, I_D=1.0\text{A}$	$R_{DS(on)}$	- - - -	- - - -	30 34 50 90	$\text{m}\Omega$
Forward Transconductance $V_{DS}=5\text{V}, I_D=5.3\text{A}$	g_{fs}	-	13	-	S

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Dynamic

Input Capacitance $V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1.0\text{MHz}$	C_{iss}	-	603	1085	pF
Output Capacitance $V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1.0\text{MHz}$	C_{oss}	-	144	-	
Reverse Transfer Capacitance $V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1.0\text{MHz}$	C_{rss}	-	111	-	

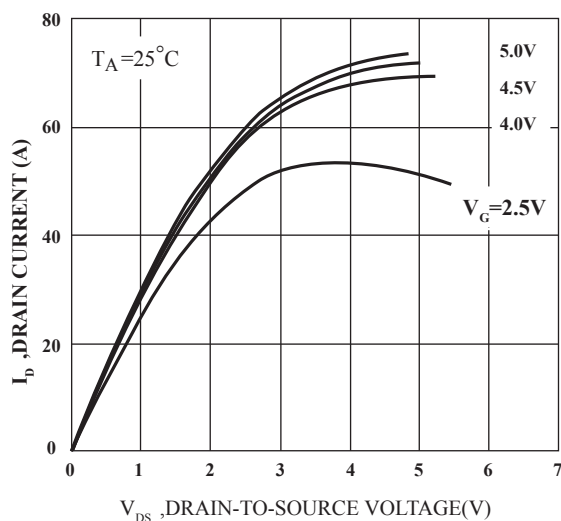
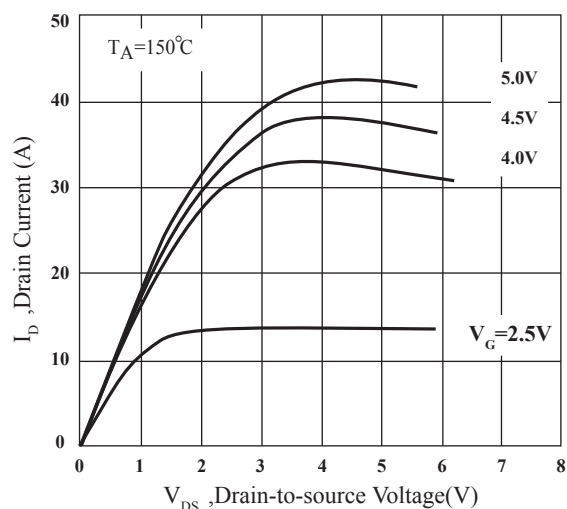
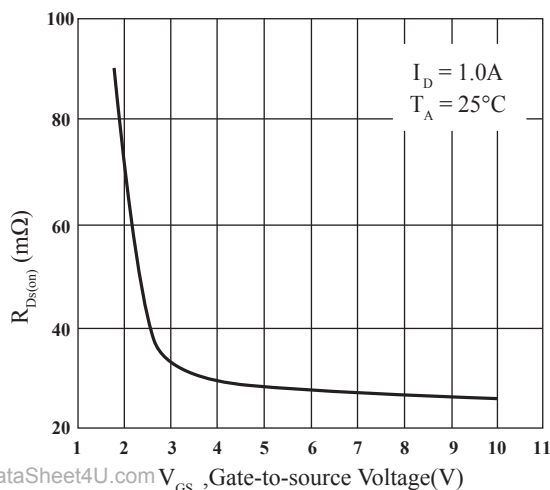
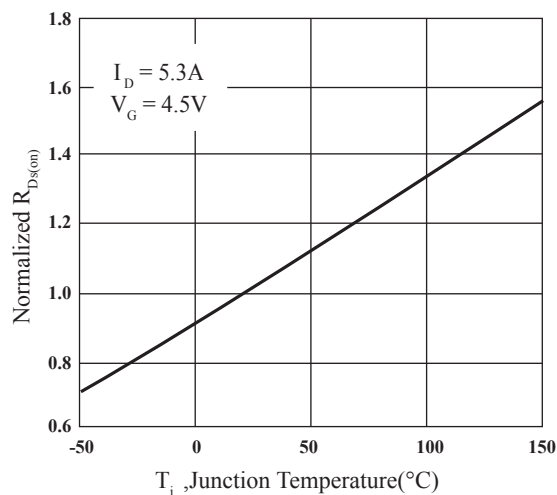
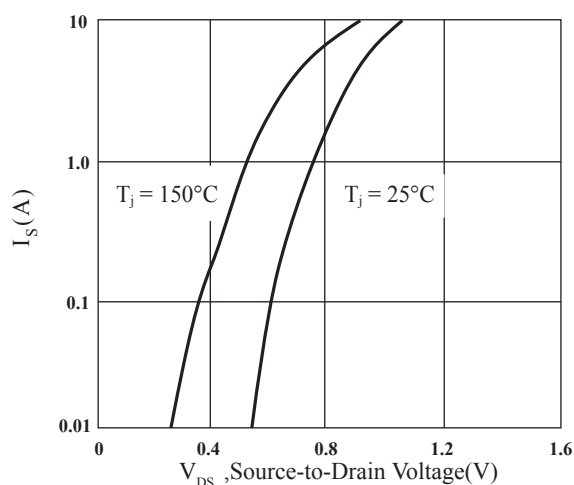
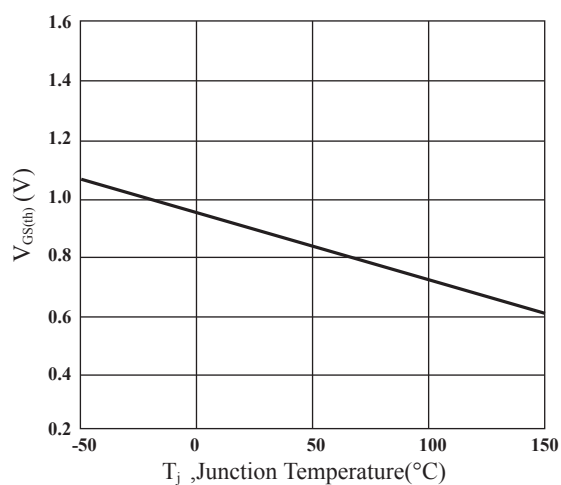
Switching

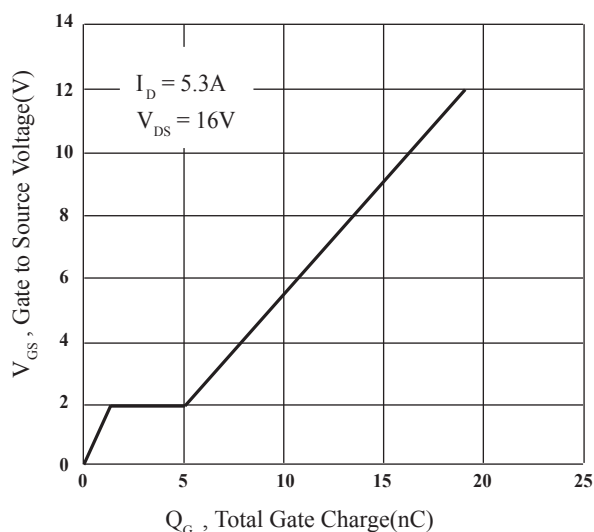
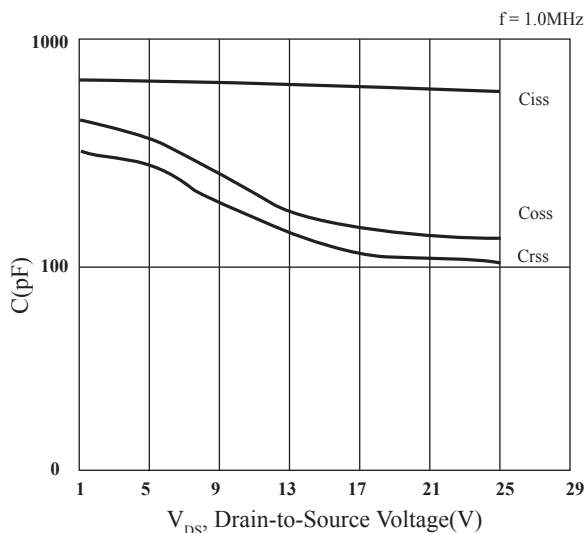
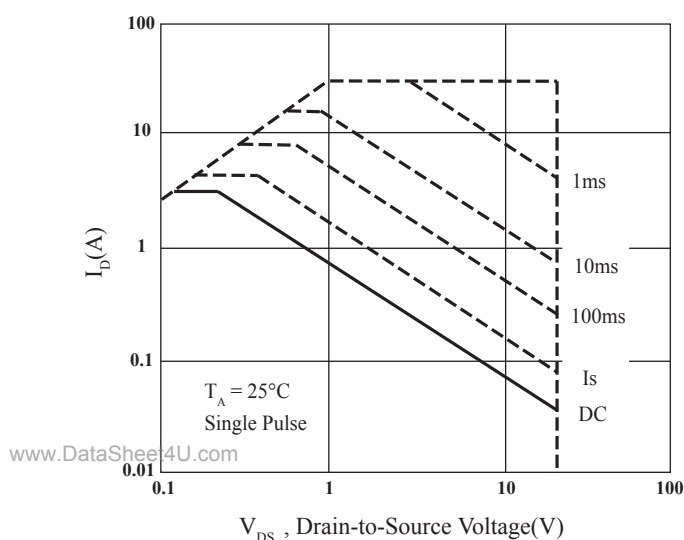
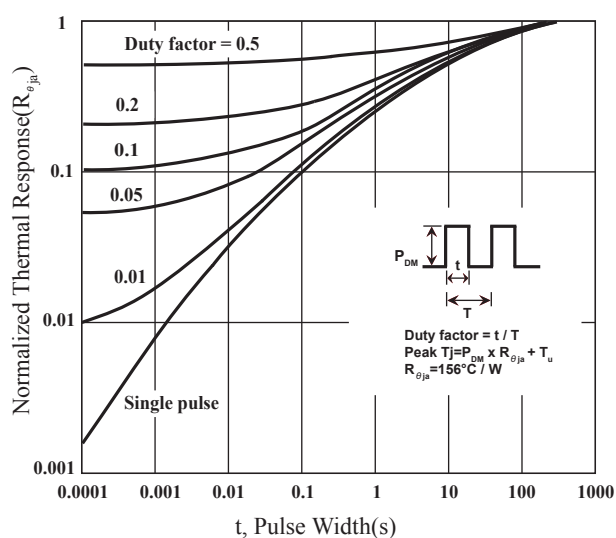
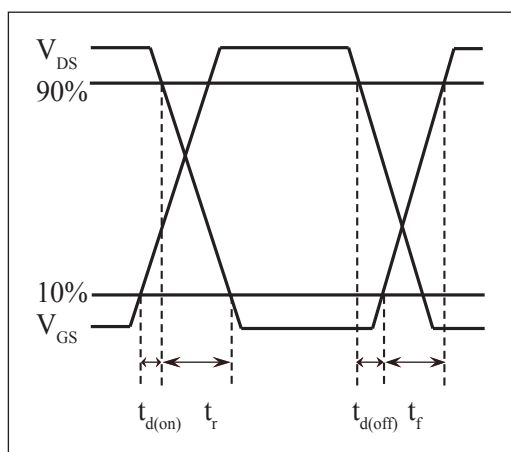
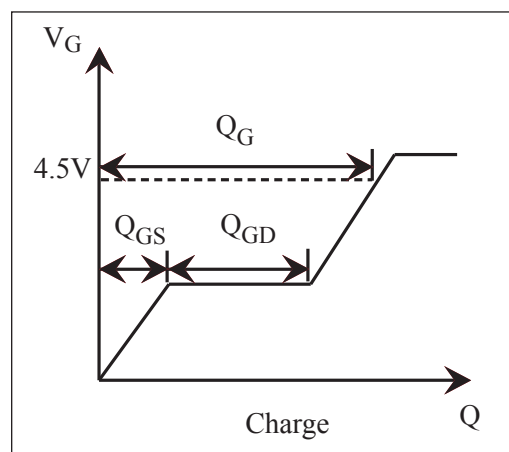
Turn-on Delay Time ² $V_{DS}=15V, V_{GS}=10V, I_D=1A, R_D=15\Omega, R_G=2\Omega$	$t_{d(on)}$	-	6	-	ns
Rise Time $V_{DS}=15V, V_{GS}=10V, I_D=1A, R_D=15\Omega, R_G=2\Omega$	t_r	-	14	-	
Turn-off Delay Time $V_{DS}=15V, V_{GS}=10V, I_D=1A, R_D=15\Omega, R_G=2\Omega$	$t_{d(off)}$	-	18.4	-	
Fall Time $V_{DS}=15V, V_{GS}=10V, I_D=1A, R_D=15\Omega, R_G=2\Omega$	t_f	-	2.8	-	
Total Gate Charge ² $V_{DS}=10V, V_{GS}=4.5V, I_D=5.3A$	Q_g	-	8.7	16	nC
Gate-Source Charge $V_{DS}=10V, V_{GS}=4.5V, I_D=5.3A$	Q_{gs}	-	1.5	-	
Gate-Source Change $V_{DS}=10V, V_{GS}=4.5V, I_D=5.3A$	Q_{gd}	-	3.6	-	

Source-Drain Diode Characteristics

Forward On Voltage ² $V_{GS}=0V, I_S=1.2A$	V_{SD}	-	-	1.2	V
Reverse Recovery Time $V_{GS}=0V, I_S=5A, di/dt=100A/\mu s$	T_{rr}	-	16.8	-	ns
Reverse Recovery Charge $V_{GS}=0V, I_S=5A, di/dt=100A/\mu s$	Q_{rr}	-	11	-	nC

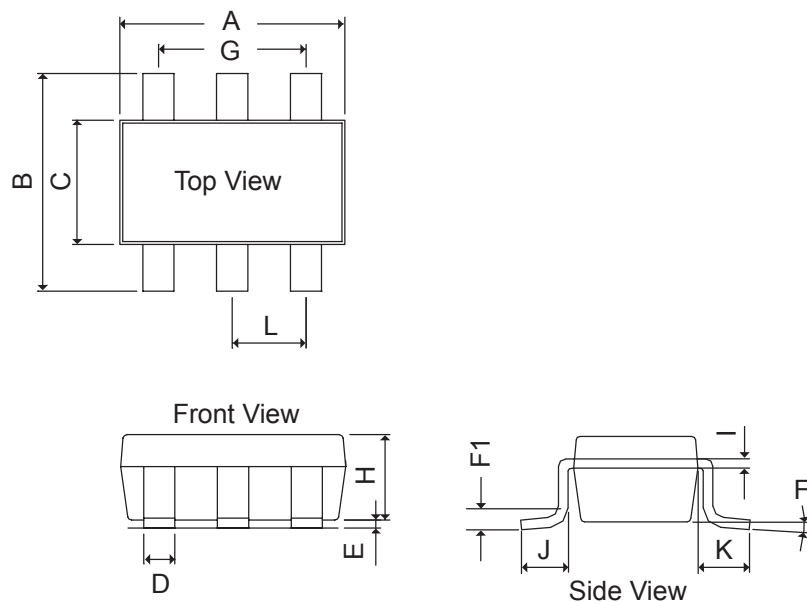
Note: 1. Pulse width limited by max. junction temperature.
 2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 3. Surface mounted on 1 in2 copper pad of FR4 board; $156^\circ C/W$ when mounted on Min. copper pad.

WTL2602**WEITRON****FIG.1 Typical Output Characteristics****Fig.2 Typical Output Characteristics****Fig.3 On-Resistance v.s. Gate Voltage****Fig.4 Normalized OnResistance****Fig.5 Forward Characteristics of Reverse Diode****Fig.6 Gate Threshold Voltage v.s. Junction Temperature**

WTL2602**WEITRON****Fig 7. Gate Charge Characteristics****Fig 8. Typical Capacitance Characteristics****Fig 9. Maximum Safe Operation Area****Fig 10. Effective Transient Thermal Impedance****Fig 11. Switching Time Circuit****Fig.12 Gate Charge Waveform**

WTL2602**WEITRON****SOT-26 Outline Dimension**

Unit:mm



SOT-26		
Dim	Min	Max
A	2.70	3.10
B	2.60	3.00
C	1.40	1.80
D	0.30	0.55
E	0.00	0.10
F	0°	10°
F1	0.08	0.25
G	1.90 REF	
H	1.20 REF	
I	0.12 REF	
J	0.37 REF	
K	0.60 REF	
L	0.95 REF	