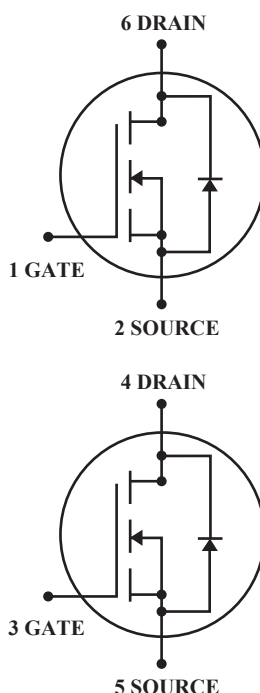


### Dual N-Channel Enhancement Mode MOSFET

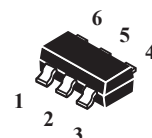
**(Pb)** Lead(Pb)-Free

#### Features:

- \*Super High Dense Cell Design For Low  $R_{DS(ON)}$   
 $R_{DS(ON)} < 80m\Omega @ V_{GS}=4.5V$
- \*Rugged and Reliable
- \*Capable of 2.5V Gate Drive
- \*Simple Drive Requirement
- \*SOT-26 Package



**DRAIN CURRENT**  
**2.5 AMPERES**  
**DRAIN SOURCE VOLTAGE**  
**20 VOLTAGE**



**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	$V_{GS}$	$\pm 10$	
Continuous Drain Current <sup>1</sup> , $V_{GS}@4.5V$ , $T_A=25^\circ C$ -Pulsed <sup>2</sup>	$I_D$	2.5	A
	$I_{DM}$	8	
Drain-Source Diode Forward Current <sup>1</sup>	$I_S$	1.25	
Total Power Dissipation <sup>1</sup> ( $T_A=25^\circ C$ )	$P_D$	1	W
Maximum Junction-ambient <sup>1</sup>	$R_{\theta JA}$	125	$^\circ C/W$
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	$-55 \sim +150$	$^\circ C$

### Device Marking

WTL2622=STS2622

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

Characteristic	Symbol	Min	Typ <sup>3</sup>	Max	Unit
----------------	--------	-----	------------------	-----	------

**OFF Characteristics**

Drain-Source Breakdown Voltage $V_{GS}=0, I_D=250\mu\text{A}$	$BV_{DSS}$	20	-	-	V
Drain-Source Leakage Current $V_{DS}=16\text{V}, V_{GS}=0\text{V}$	$I_{DSS}$	-	-	1	$\mu\text{A}$
Gate-Source Leakage current $V_{GS}=\pm 10\text{V}, V_{DS}=0\text{V}$	$I_{GSS}$	-	-	$\pm 100$	nA

**ON Characteristics<sup>2</sup>**

Gate-Source Threshold Voltage $V_{DS}=V_{GS}, I_D=250\mu\text{A}$	$V_{GS(Th)}$	0.5	0.8	1.5	V
Drain-Source On-Resistance $V_{GS}=4.5\text{V}, I_D=2.5\text{A}$ $V_{GS}=2.5\text{V}, I_D=2.0\text{A}$	$R_{DS(on)}$	- -	65 90	80 110	$\text{m}\Omega$
On-State Drain Current $V_{DS}=5\text{V}, V_{GS}=4.5\text{V}$	$I_{D(ON)}$	6	-	-	A
Forward Transconductance $V_{DS}=5\text{V}, I_D=2.5\text{A}$	gfs	-	7	-	S

**Dynamic Characteristics<sup>3</sup>**

Input Capacitance $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1.0\text{MHz}$	$C_{iss}$	-	220	-	pF
Output Capacitance $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1.0\text{MHz}$	$C_{oss}$	-	67	-	
Reverse Transfer Capacitance $V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1.0\text{MHz}$	$C_{rss}$	-	50	-	

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

Characteristic	Symbol	Min	Typ <sup>3</sup>	Max	Unit
----------------	--------	-----	------------------	-----	------

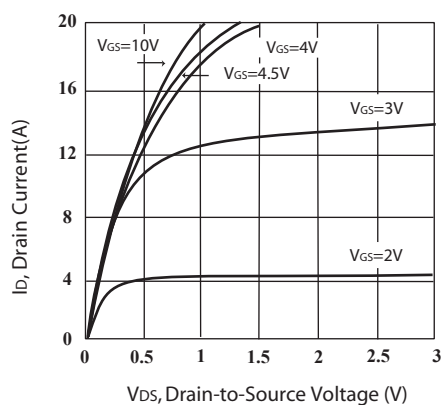
### Switching Characteristics<sup>3</sup>

Turn-on Delay Time <sup>2</sup> $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega$	$t_{d(on)}$	-	10.2	-	ns
Rise Time $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega$	$t_r$	-	8.3	-	
Turn-off Delay Time $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega$	$t_{d(off)}$	-	13.5	-	
Fall Time $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}, R_{GEN}=6\Omega$	$t_f$	-	12.7	-	
Total Gate Charge <sup>2</sup> $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=2.5\text{A}$	$Q_g$	-	4	-	nC
Gate-Source Charge $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=2.5\text{A}$	$Q_{gs}$	-	1.5	-	
Gate-Source Change $V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=2.5\text{A}$	$Q_{gd}$	-	0.7	-	

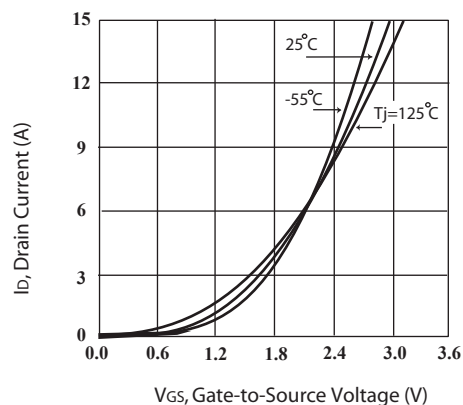
### Source-Drain Diode Characteristics<sup>2</sup>

Forward On Voltage $V_{GS}=0\text{V}, I_S=1.25\text{A}$	$V_{SD}$	-	0.84	1.2	V
--	----------	---	------	-----	---

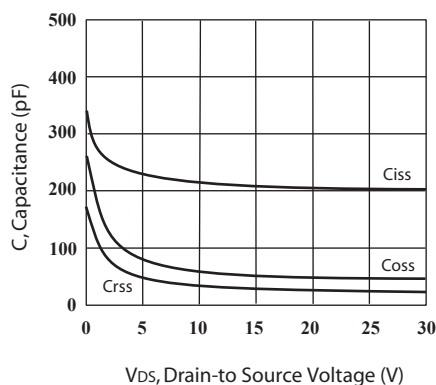
Note: 1. Surface mounted on 1 in2 copper pad of FR4 board,  $t \leq 10\text{sec}$ .  
 2. Pulse Test : Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .  
 3. Guaranteed by design, not subject to production testing.



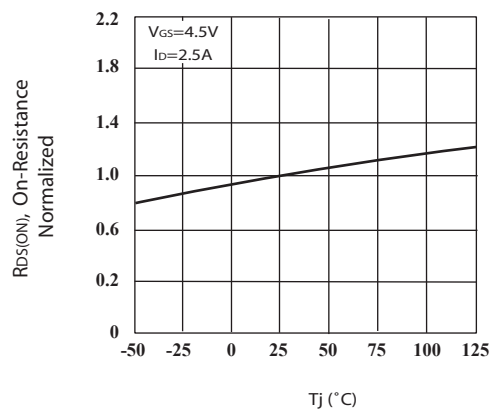
**Fig.1 Output Characteristics**



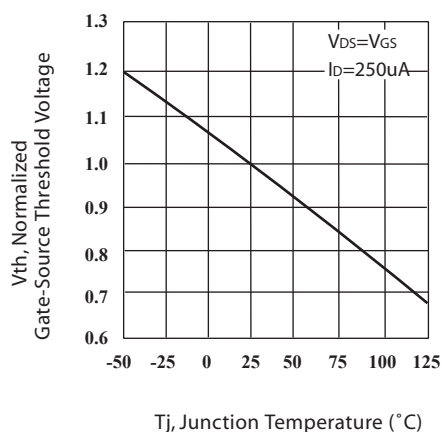
**Fig.2 Transfer Characteristics**



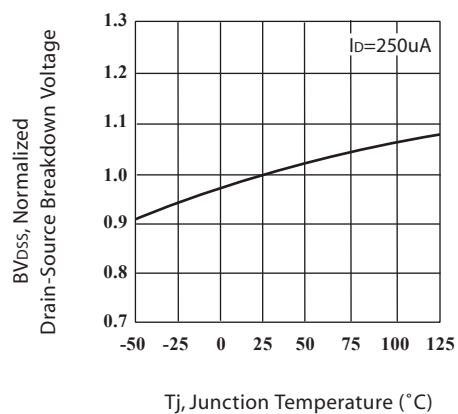
**Fig.3 Capacitance with Drain to Source Voltage**



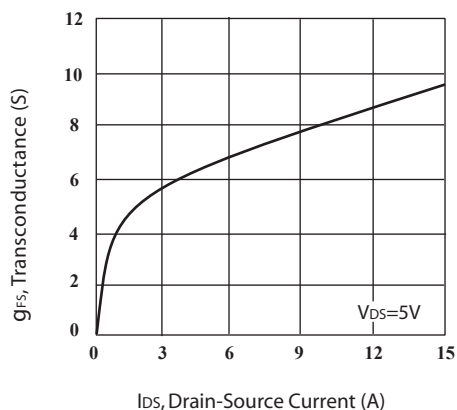
**Fig.4 On-Resistance Variation with Temperature**



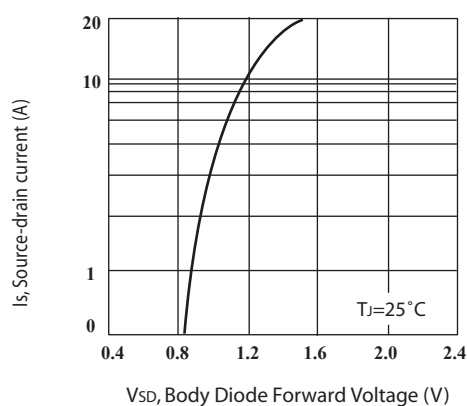
**Fig.5 Gate Threshold Voltage Variation with Temperature**



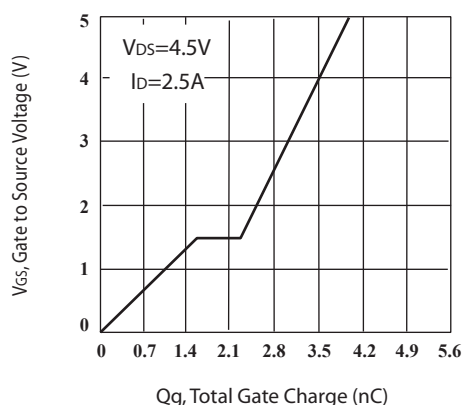
**Fig.6 Breakdown Voltage Variation with Temperature**



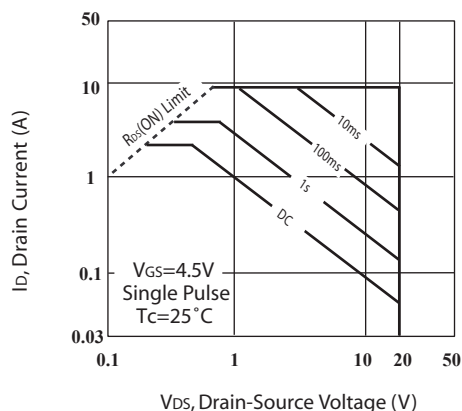
**Fig.7 Transconductance Variation with Drain Current**



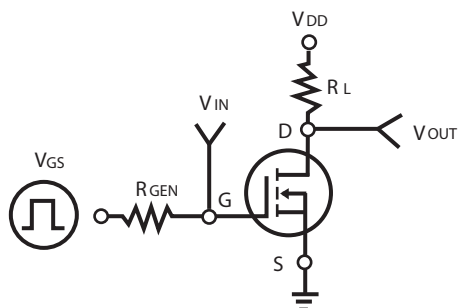
**Fig.8 Body Diode Forward Voltage Variation with Source Current**



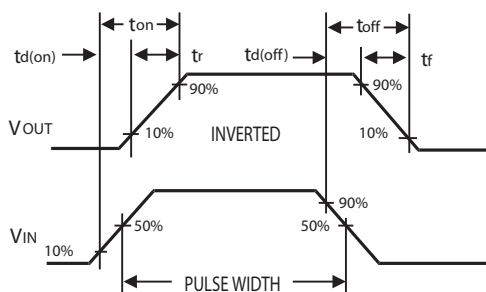
**Fig.9 Gate Charge**



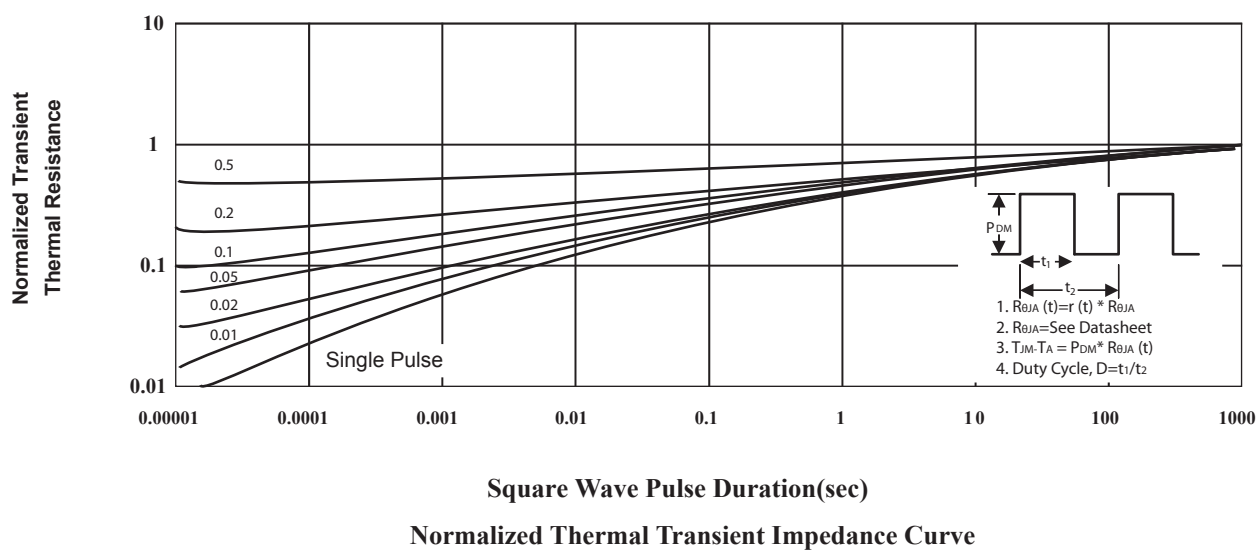
**Fig.10 Maximum Safe Operating Area**



**Fig.11 Switching Test Circuit**

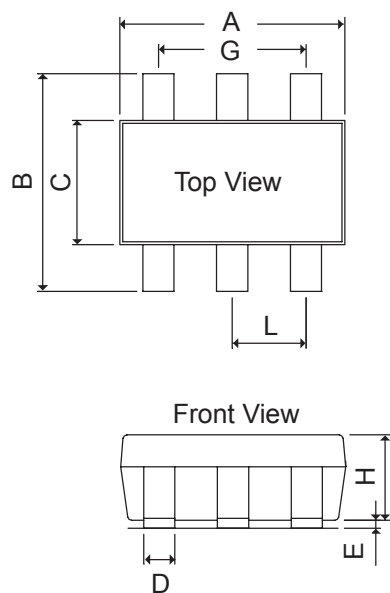


**Fig.12 Switching Waveforms**



## 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	