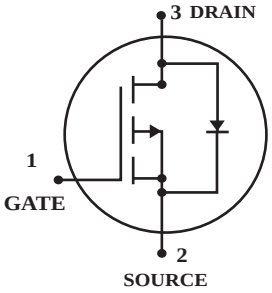
WEITRON

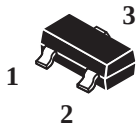
WT-2301

Surface Mount P-Channel Enhancement Mode MOSFET

Pb **Lead(Pb)-Free**



DRAIN CURRENT
- 3.4 AMPERES
DRAIN SOURCE VOLTAGE
- 20 VOLTAGE



SOT-23

Features:

*Super high dense cell design for low $R_{DS(ON)}$
$R_{DS(ON)}$ <60 mΩ @V_{GS} =-4.5V
$R_{DS(ON)}$ <80 mΩ @V_{GS} =-2.5V
$R_{DS(ON)}$ <105 mΩ@V_{GS} =-1.8V
*Rugged and Reliable
*SOT-23 Package

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

Rating	Symbol	Value	Unite
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current (T_J =125°C)(1)	I_D	-3.4	A
Pulsed Drain Current (2)	I_{DM}	-12	A
Drain-Source Diode Forward Current (1)	I_S	-1.25	A
Power Dissipation (1)	P_D	1.25	W
Maximax Junction-to-Ambient	$R_{\theta JA}$	100	°C/W
Operating Junction and Storage Temperature Range	T_J, Tstg	-55 to 150	°C

Device Marking

WT2301=S01

Electrical Characteristics (T_A=25 °C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Static (2)					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=-250 uA	$V_{(BR)DSS}$	-20	-	-	V
Gate-Source Threshold Voltage V_{DS}=V_{GS}, I_D=-250 uA	$V_{GS\ (th)}$	-0.6	-0.85	-1.5	V
Gate-Source Leakage Current V_{DS}=0V, V_{GS}=±10V	I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current V_{DS}=-16V, V_{GS}=0V	I_{DSS}	-	-	1	uA
Drain-Source On-Resistance V_{GS}=-4.5V, I_D=-4.0A V_{GS}=-2.5V, I_D=-2.0A V_{GS}=-1.8V, I_D=-1.0A	$r_{DS\ (on)}$	 - - -	 50 70 95	 60 80 105	mΩ
On-State Drain Current V_{DS}=-5V, V_{GS}=-4.5A	$I_{D(on)}$	-20	-	-	A
Forward Transconductance V_{DS}=-5V, I_D=-5A	g_{fs}	5	-	-	S
Dynamic (3)					
Input Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{iss}	-	926	-	PF
Output Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{oss}	-	183	-	
Reverse Transfer Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{rss}	-	141	-	
Switching (3)					
Turn-On Time V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_L=10Ω, R_{GEN}=6Ω	$t_{d(on)}$	-	13.9	-	nS
Rise Time V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_L=10Ω, R_{GEN}=6Ω	t_r	-	17.6	-	nS
Turn-Off Time V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_L=10Ω, R_{GEN}=6Ω	$t_{d(off)}$	-	87.7	-	nS
Fall Time V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_L=10Ω, R_{GEN}=6Ω	t_f	-	53.9	-	nS
Total Gate Charge V_{DS}=-10V, I_D=-3A, V_{GS}=-4.5V	Qg	-	11.9	-	nc
Gate-Source Charge V_{DS}=-10V, I_D=-3A, V_{GS}=-4.5V	Qgs	-	1.96	-	nc
Gate-Drain Charge V_{DS}=-10V, I_D=-3A, V_{GS}=-4.5V	Qgd	-	3.49	-	nc
Drain-Source Diode Forward Voltage V_{GS}=0V, I_S=-1.25A	V_{SD}	-	-0.795	-1.2	V

Note: 1. Surface Mounted on FR4 Board t ≤ 10sec.
2. Pulse Test : PW≤ 300us, Duty Cycle ≤ 2%.
3. Guaranteed by Design, not Subject to Production Testing.

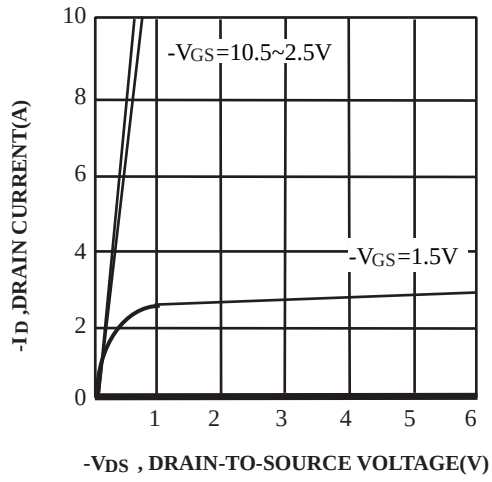


FIG.1. Output Characteristics

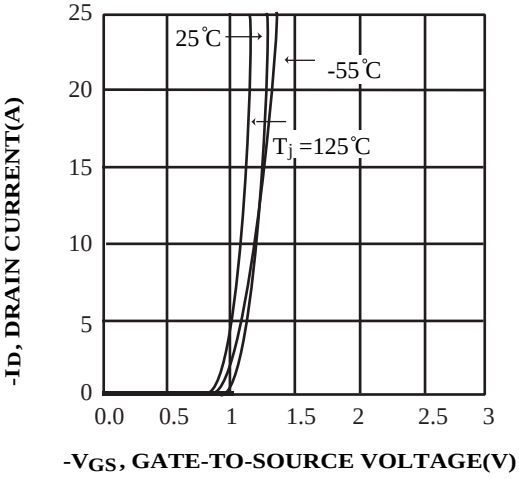


FIG.2 Transfer Characteristics

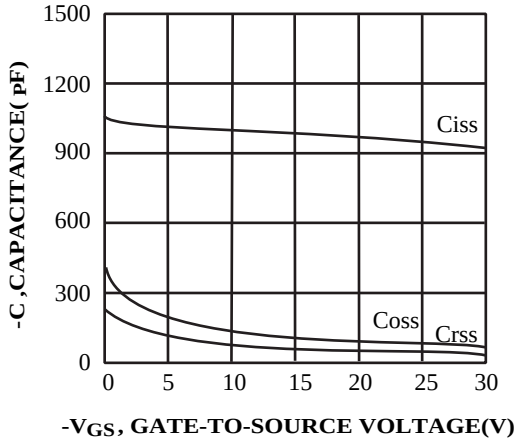


FIG.3 Capacitance

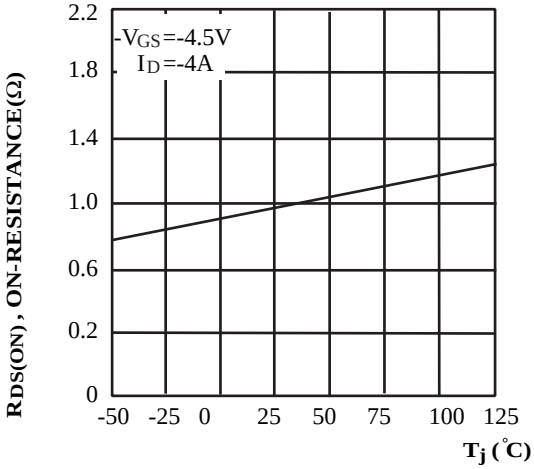


FIG.4 On-Resistance Variation with Temperature

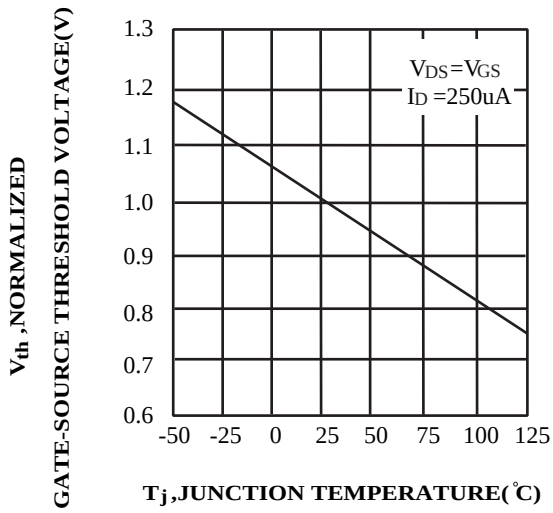


FIG.5 Gate Threshold Variation with Temperature

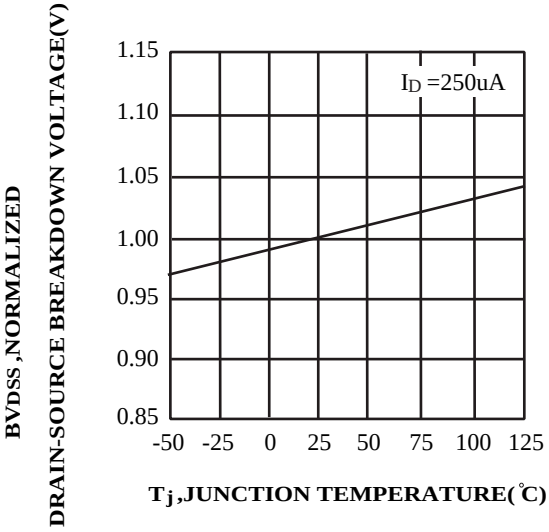


FIG.6 Breakdown Voltage Variation with Temperature

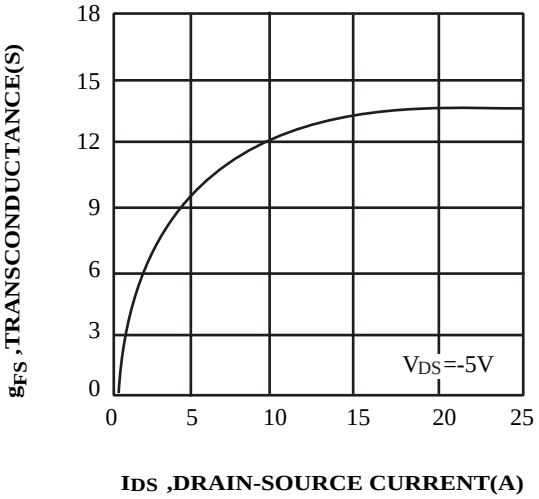


FIG.7 Transconductance Variation with Drain Current

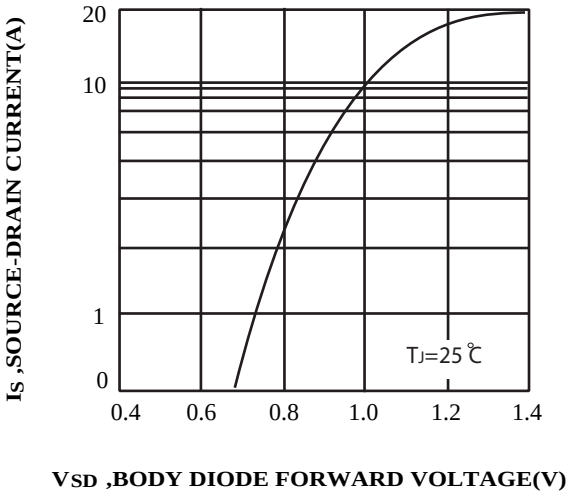


FIG.8 Body Diode Forward Voltage Variation with Source Current

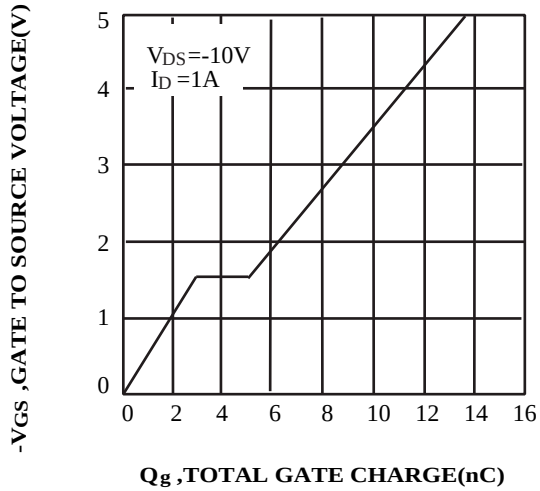


FIG.9 Gate Charge

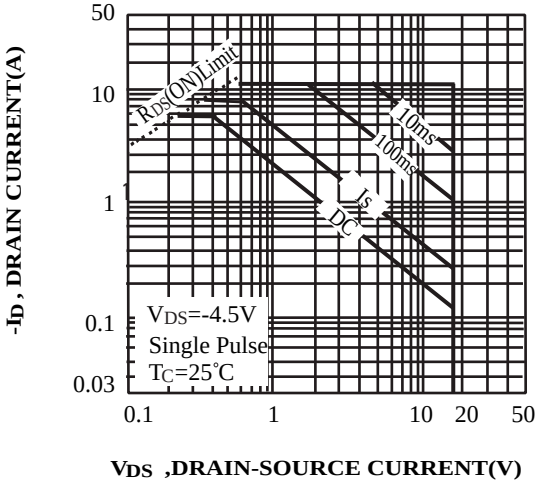


FIG.10 Maximum Safe Operating Area

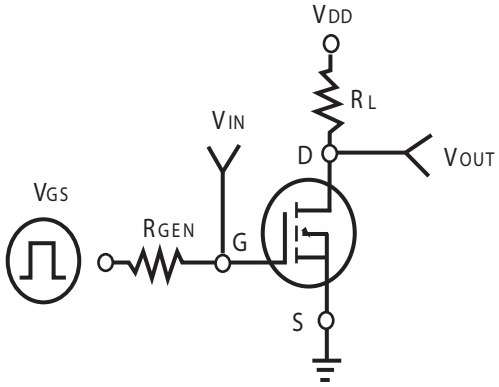


FIG.11 Switching Test Circuit

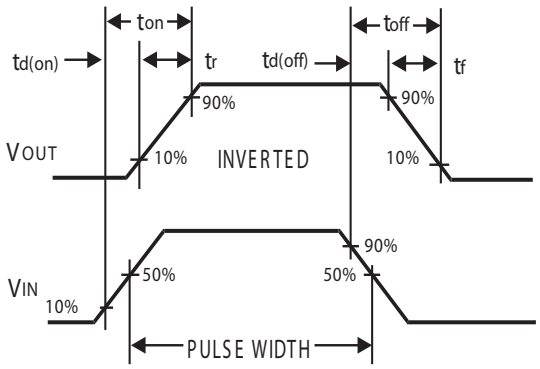


FIG.12 Switching Waveforms

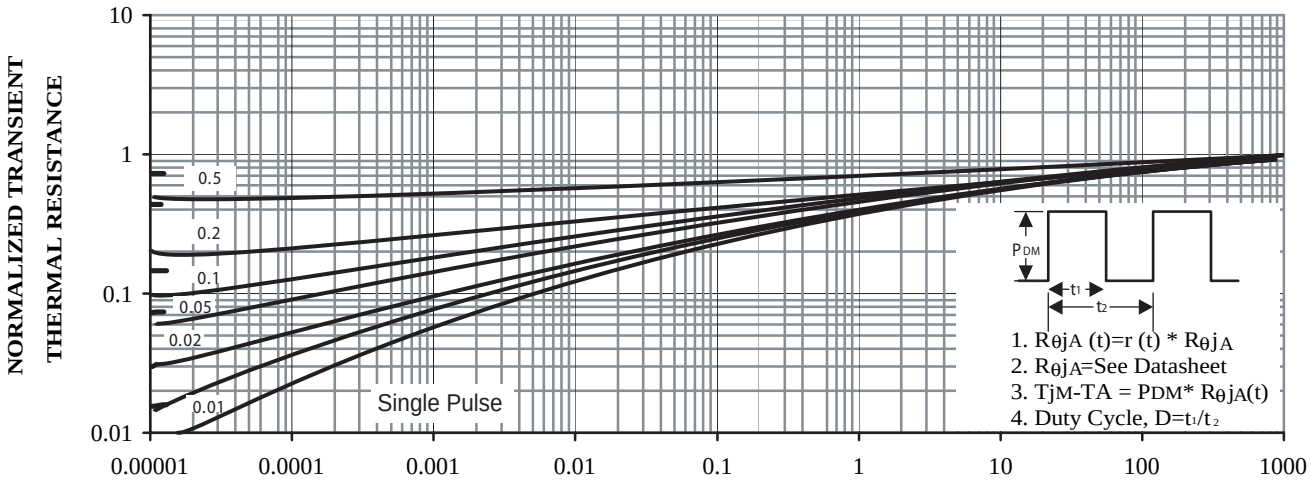
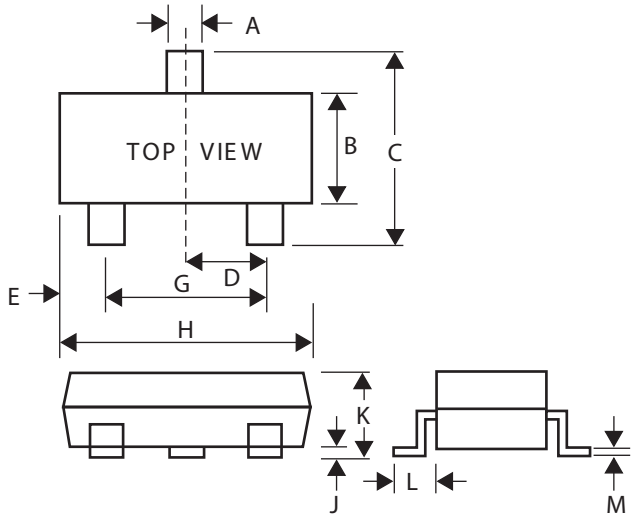


FIG.13 NORMALIZED THERMAL TRANSIENT IMPEDANCE CUREVE

SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25