

Surface Mount P-Channel Enhancement Mode MOSFET

Pb Lead(Pb)-Free

Features:

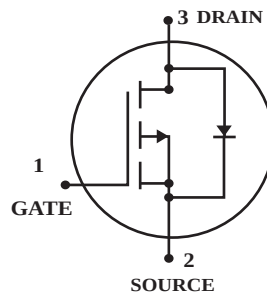
*Super high dense cell design for low $R_{DS(ON)}$

$R_{DS(ON)} < 80 \text{ m}\Omega @ V_{GS} = -4.5\text{V}$

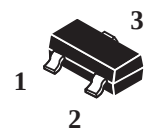
$R_{DS(ON)} < 100 \text{ m}\Omega @ V_{GS} = -2.5\text{V}$

*Rugged and Reliable

*SOT-23 Package



DRAIN CURRENT
- 3 AMPERES
DRAIN SOURCE VOLTAGE
- 20 VOLTAGE



SOT-23

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 ($T_J = 125^\circ\text{C}$) ⁽¹⁾	I_D	-3	A
Pulsed Drain Current ⁽²⁾	I_{DM}	-11	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	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Device Marking

WT2307=S07

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

Characteristic	Symbol	Min	Typ	Max	Unit
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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)}	-0.5	-0.8	-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	r _{DS(on)}	- -	70 85	80 100	mΩ
On-State Drain Current V _{DS} =-5V, V _{GS} =-4.5A	I _{D(on)}	-15	-	-	A
Forward Transconductance V _{DS} =-5V, I _D =-5A	g _{fs}	4	-	-	S

Dynamic(3)

Input Capacitance V _{DS} =-15V, V _{GS} =0V, f=1MHZ	C _{iss}	-	586	-	PF
Output Capacitance V _{DS} =-15V, V _{GS} =0V, f=1MHZ	C _{oss}	-	101	-	
Reverse Transfer Capacitance V _{DS} =-15V, V _{GS} =0V, f=1MHZ	C _{rss}	-	59	-	

Switching (3)

Turn-On Time V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _L =10 Ω, R _{GEN} =6Ω	t _{d(on)}	-	6.5	-	nS
Rise Time V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _L =10 Ω, R _{GEN} =6Ω	t _r	-	32.1	-	nS
Turn-Off Time V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _L =10 Ω, R _{GEN} =6Ω	t _{d(off)}	-	58.4	-	nS
Fall Time V _{GS} =-4.5V, V _{DD} =-10V, I _D =-1A, R _L =10 Ω, R _{GEN} =6Ω	t _f	-	48	-	nS
Total Gate Charge V _{DS} =-10V, I _D =-3A, V _{GS} =-4.5V	Q _g	-	5.92	-	nc
Gate-Source Charge V _{DS} =-10V, I _D =-3A, V _{GS} =-4.5V	Q _{gs}	-	1.36	-	nc
Gate-Drain Charge V _{DS} =-10V, I _D =-3A, V _{GS} =-4.5V	Q _{gd}	-	1.4	-	nc
Drain-Source Diode Forward Voltage V _{DS} =0V, I _S =-1.25A	V _{SD}	-	-1.815	-1.2	V

Note: 1. Surface Mounted on FR4 Board t ≤ 10sec.

2. Pulse Test : PW ≤ 300us, Duty Cycle ≤ 2%.

2. Guaranteed by Design, not Subject to Production Testing.

Typical Electrical Characteristics

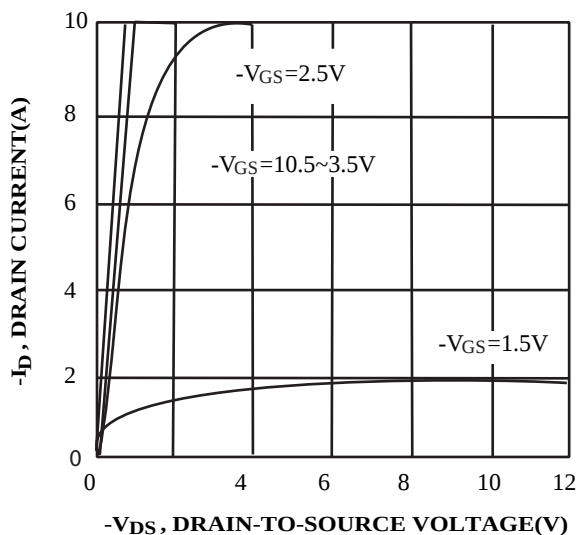


FIG.1 Output Characteristics

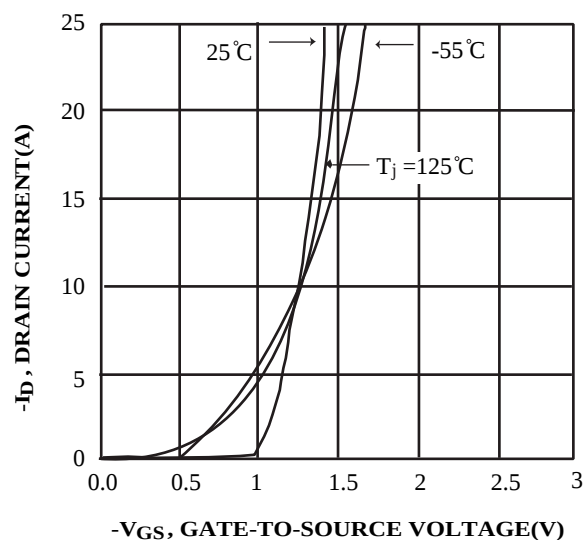


FIG.2 Transfer Characteristics

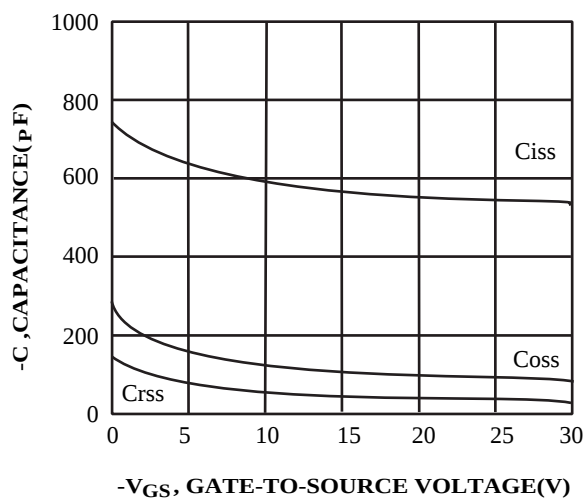


FIG.3 Capacitance

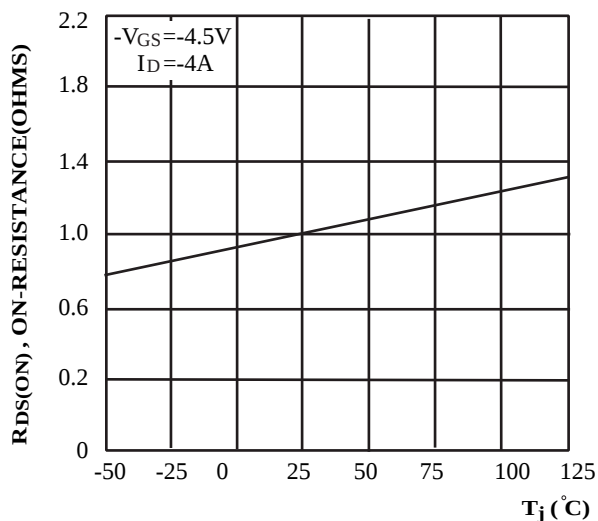
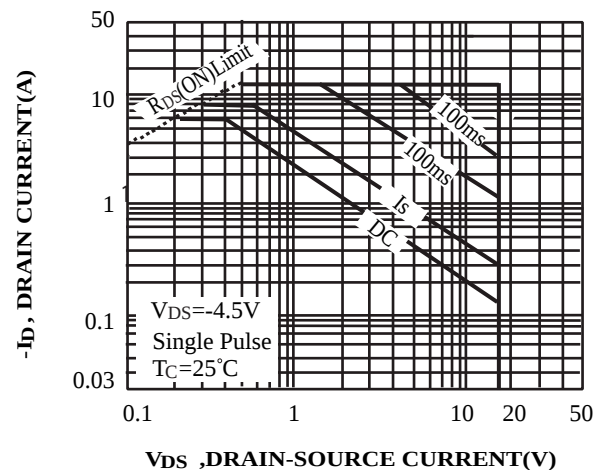
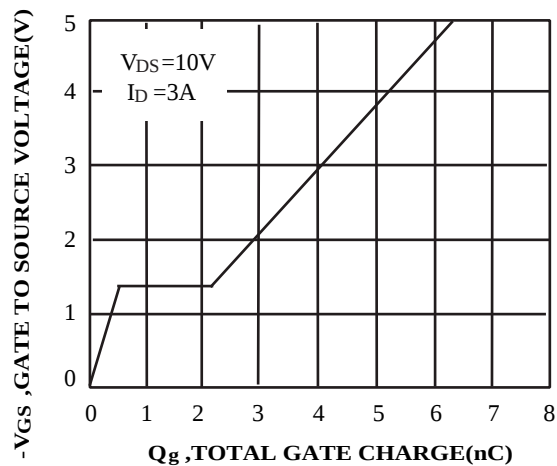
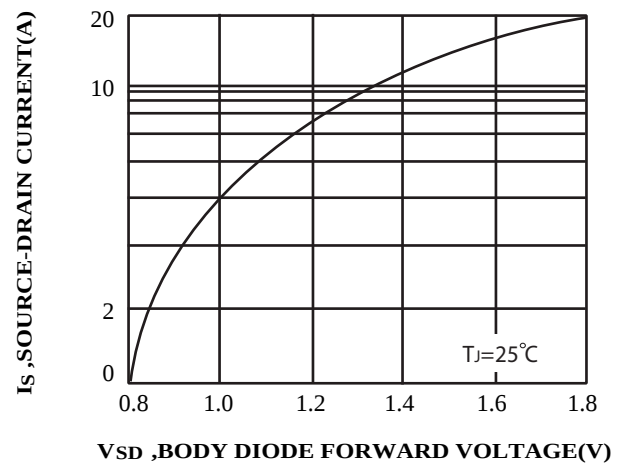
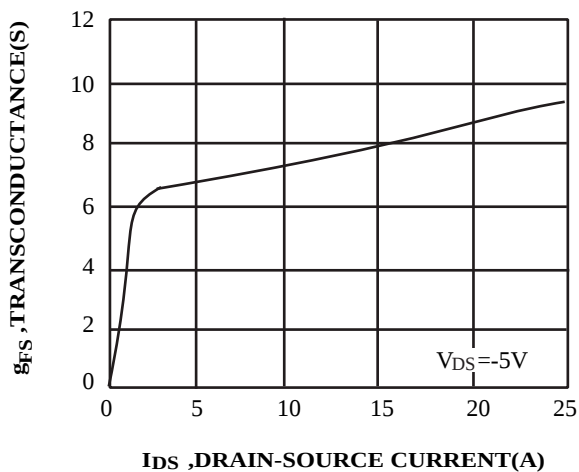
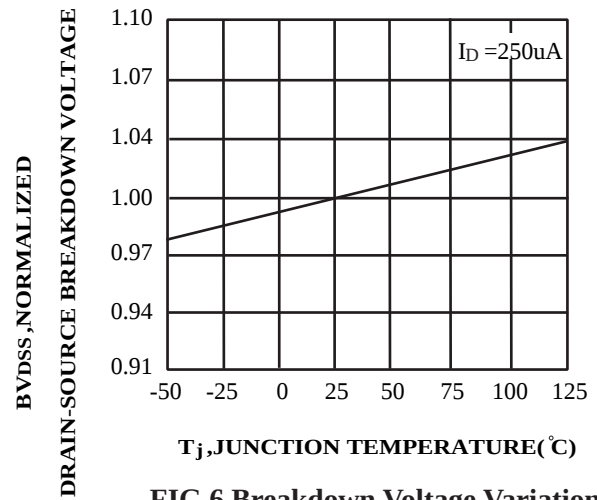
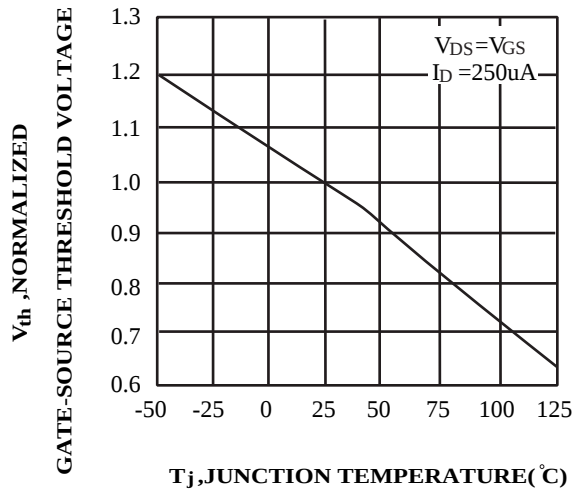


FIG.4 On-Resistance Variation with Temperature



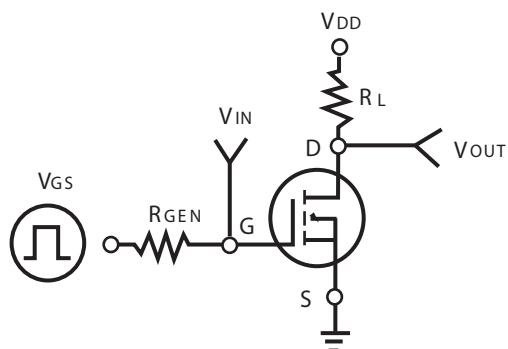


FIG.11 Switching Test Circuit

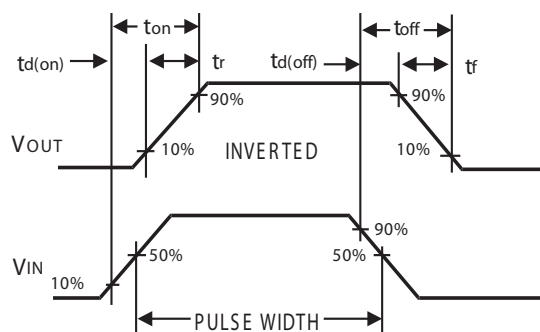
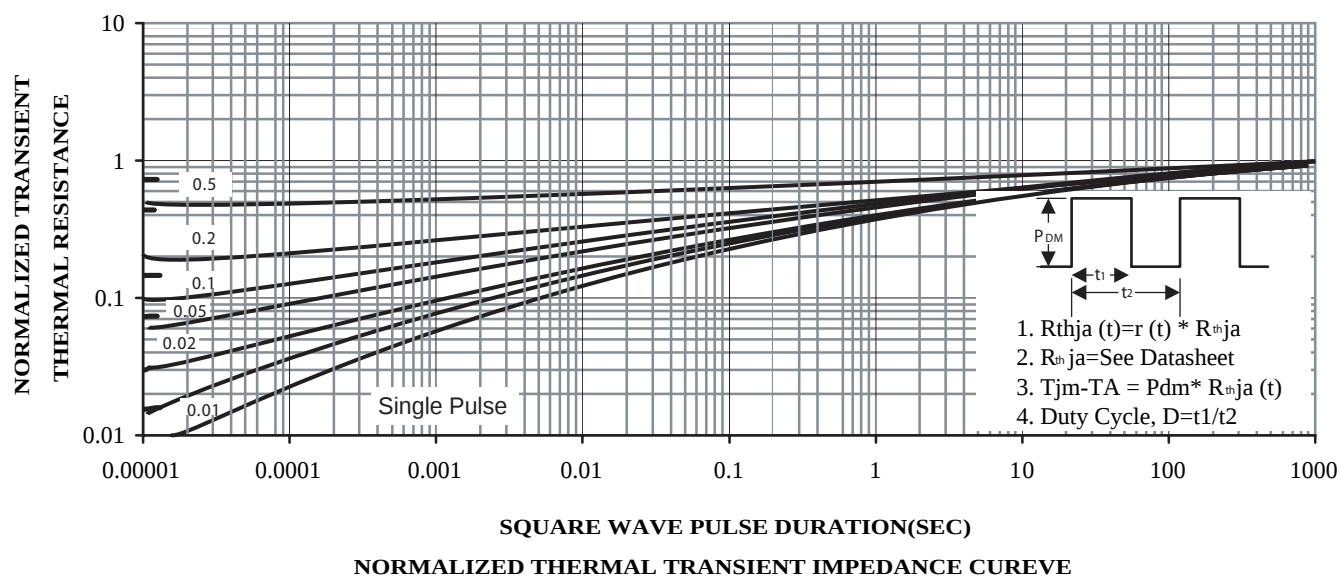
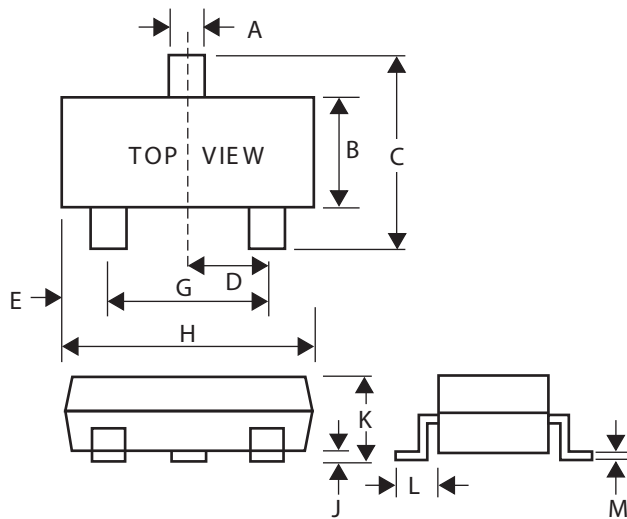


FIG.12 Switching Waveforms



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