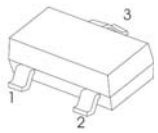
UMW 2300 N-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20 V	25mΩ@4.5V	6 A
	34.5mΩ@2.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

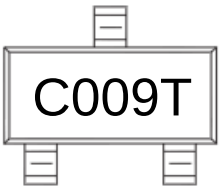
FEATURE

- TrenchFET Power MOSFET

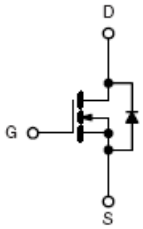
APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING



Equivalent Circuit



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	6	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D		W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	312.5	℃/W
Operating Junction	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~+150	

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =10μA	20			V
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =50μA	0.40		1	
Gate-body leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±8V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-source on-resistance[a]	$r_{DS(on)}$	V_{GS} =4.5V, I_D = 6A		0.021	0.025	Ω
		V_{GS} =2.5V, I_D =5.2A		0.028	0.034	
Forward transconductance[a]	g_{fs}	V_{DS} =5V, I_D =3.6A		8		S
Diode forward voltage	V_{SD}	I_S=0.94A,V_{GS}=0V		0.74	1.2	V
Dynamic						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =3.6A		7.7	10	nC
Gate-source charge	Q_{gs}			0.32		
Gate-drain charge	Q_{gd}			2.1		
Input capacitance [b]	C_{iss}	V_{DS} =10V,V_{GS} =0V,f=1MHz		574		pF
Output capacitance [b]	C_{oss}			70		
Reverse transfer capacitance[b]	C_{rss}			60		
Switching[b]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, R_L=5.5Ω, I_D ≈3.6A, V_{GEN}=4.5V,Rg=6Ω		78.7		ns
Rise time	t_r			128		
Turn-off delay time	$t_{d(off)}$			453		
Fall time	t_f			80.9		

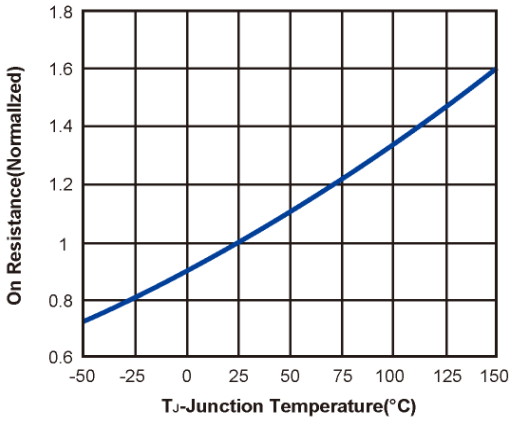
Notes :

a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

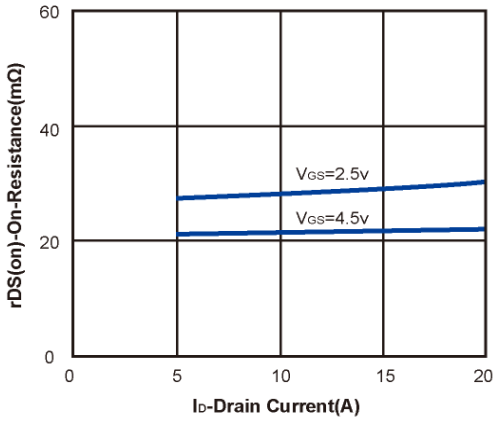
b. These parameters have no way to verify.

Typical Characteristics (T_J =25℃ Noted)

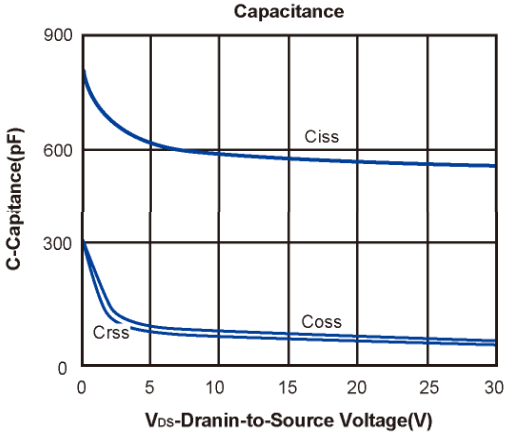
On Resistance vs. Junction Temperature



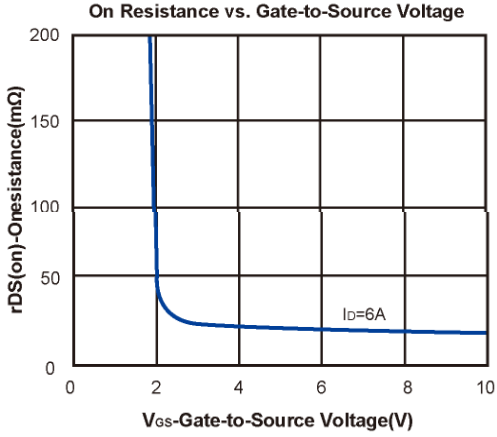
On Resistance vs. Drain Current



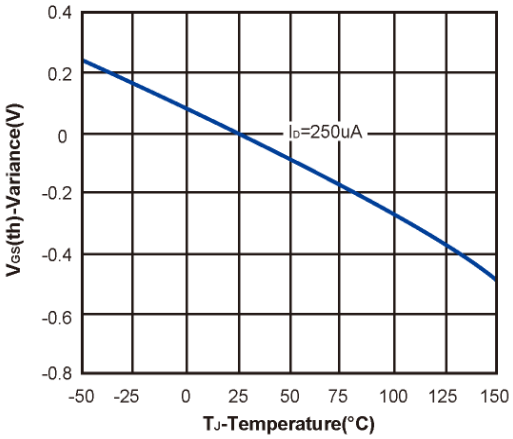
Capacitance



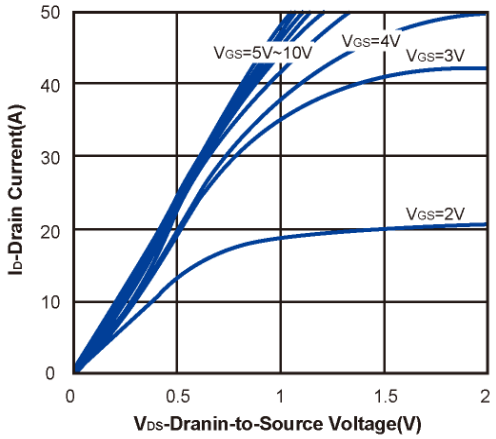
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



Typical Characteristics (T_J =25℃ Noted)