UMW®

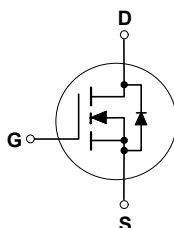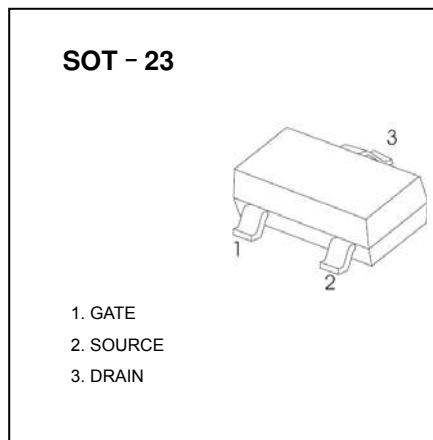## ■ Features

- $V_{DS(V)} = 60V$
- $I_D = 3A$
- $R_{DS(ON)} < 80m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 95m\Omega$ ($V_{GS} = 4.5V$)

SOT－23

1. GATE
2. SOURCE
3. DRAIN

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A=25℃$	I_D	3	A
	$T_A=70℃$		2.3	
Pulsed Drain Current *		I_{DM}	10	
Power Dissipation	$T_A=25℃$	P_D	1.38	W
Linear Derating Factor			0.01	W/℃
Thermal Resistance.Junction-to-ambient		R_{thJa}	90	℃/W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	℃

* 2.Pulse width ≤300us , duty cycle≤ 2%.

■ Electrical Characteristics Ta = 25℃

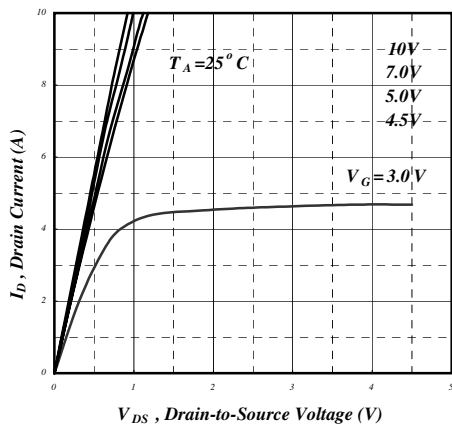| Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			10	μA
		V_{DS}=48, V_{GS}=0V , T_J=70℃			25	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3A			80	mΩ
		V_{GS}=4.5V, I_D=2A			95	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=3A		5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		490	780	pF
Output Capacitance	C_{oss}			55		
Reverse Transfer Capacitance	C_{rss}			40		
Total Gate Charge	Q_g	VDS=48V, ID=3A ,VGS=4.5V		6	10	nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3		
Turn-On DelayTime	$t_{D(on)}$	V_{GS}=10V, V_{DS}=30V,ID=1A RD=30 Ω,R_{GEN}=3.3Ω		6		ns
Turn-On Rise Time	t_r			5		
Turn-Off DelayTime	$t_{D(off)}$			16		
Turn-Off Fall Time	t_f			3		
Body Diode Reverse Recovery Time	t_{rr}	I_S=3A,dI/dt=100A/μs		25		
Body Diode Reverse Recovery Charge	Q_{rr}	I_S=3A, dI/dt=100A/μs		26		nC
Diode Forward Voltage	V_{SD}	I_S=1.2A,V_{GS}=0V			1.2	V

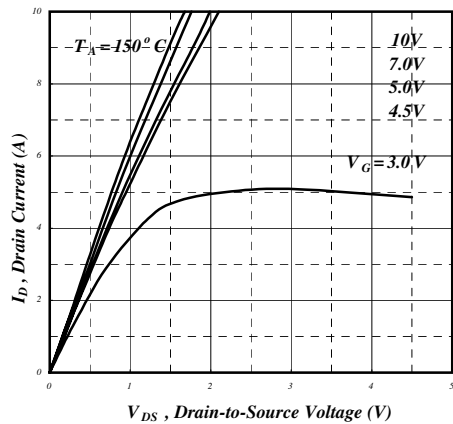**Fig 1. Typical Output Characteristics**

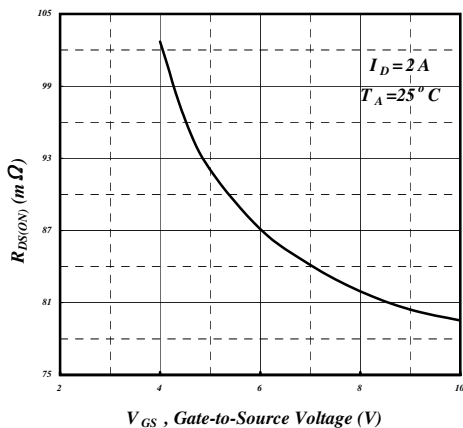**Fig 2. Typical Output Characteristics**

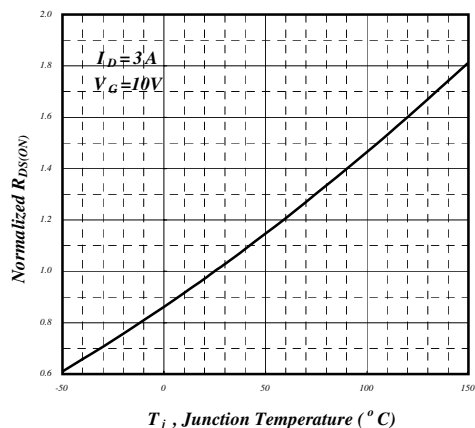**Fig 3. On-Resistance v.s. Gate Voltage**

**Fig 4. Normalized On-Resistance
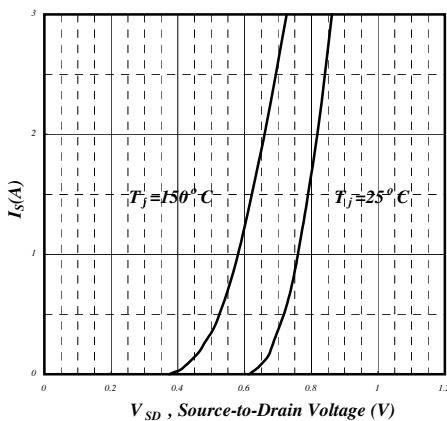v.s. Junction Temperature**

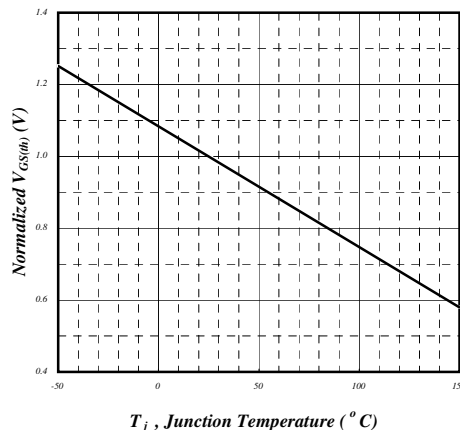**Fig 5. Forward Characteristic of
Reverse Diode**

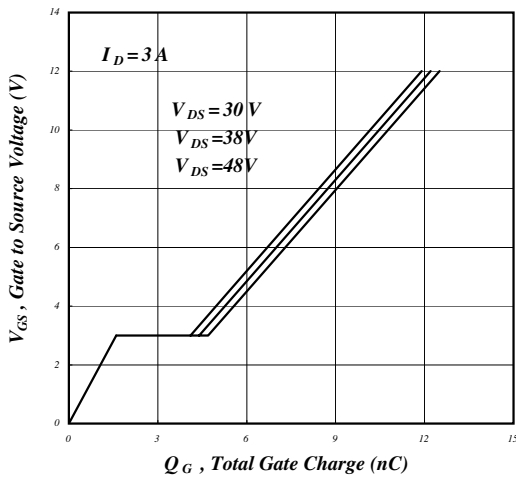**Fig 6. Gate Threshold Voltage v.s.
Junction Temperature**

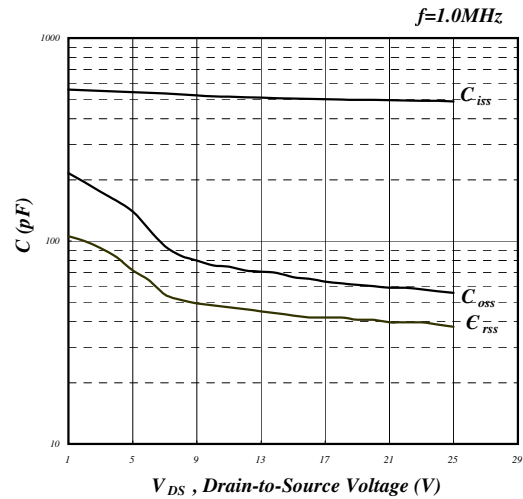**Fig 7. Gate Charge Characteristics**
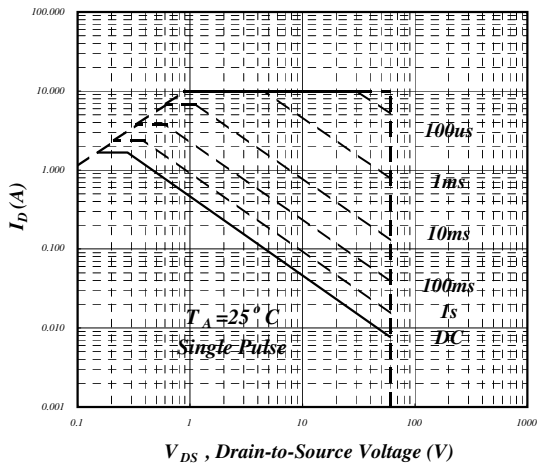
Fig 8. Typical Capacitance Characteristics
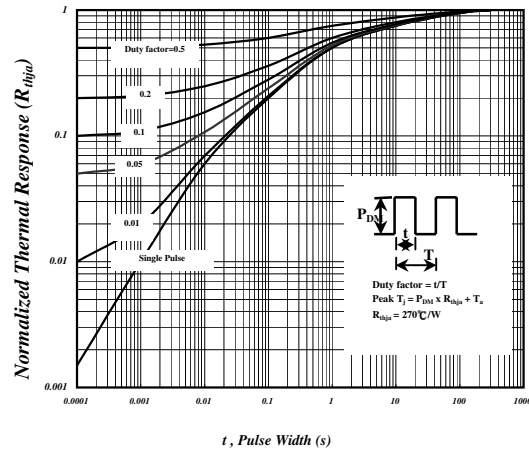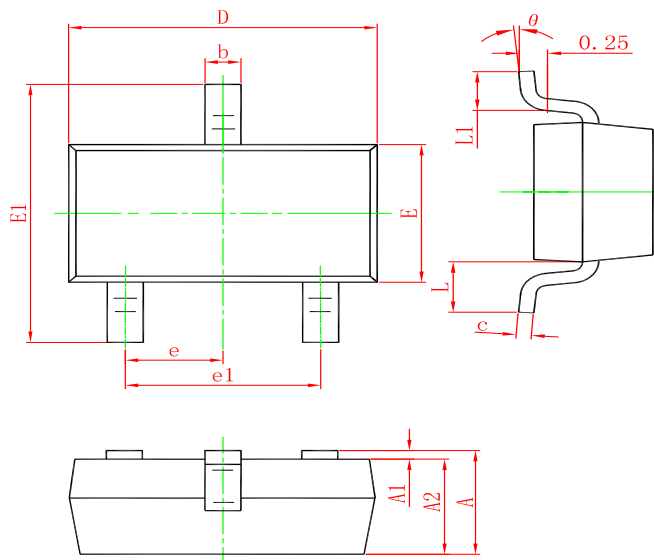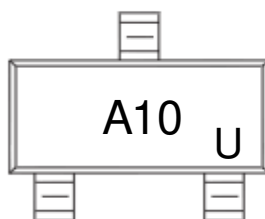
Fig 9. Maximum Safe Operating Area

Fig 10. Effective Transient Thermal Impedance

SOT-23 PACKAGE OUTLINE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Marking

Ordering information

Order code	Package	Baseqty	Deliverymode
UMW SI2310A	SOT-23	3000	Tape and reel