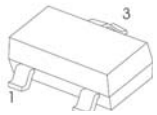
P-Channel Enhancement MOSFET

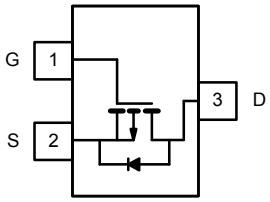
■ Features

- $V_{DS\ (V)}$ =-30V
- I_D =-3.0A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 50mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 70mΩ (V_{GS} =-4.5V)

SOT－23



1. GATE
2. SOURCE
3. DRAIN



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	5 sec	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	Ta = 25℃	I_D	-3	A
	Ta = 70℃		-2.5	
Pulsed Drain Current		I_{DM}	-12	
Power Dissipation	Ta = 25℃	P_D	1.25	W
	Ta = 70℃		0.8	
Thermal Resistance.Junction- to-Ambient	t≤10 sec	R_{thJA}	100	℃/W
Junction Temperature		T_J	150	℃
Junction and Storage Temperature Range		T_{stg}	-55 to 150	

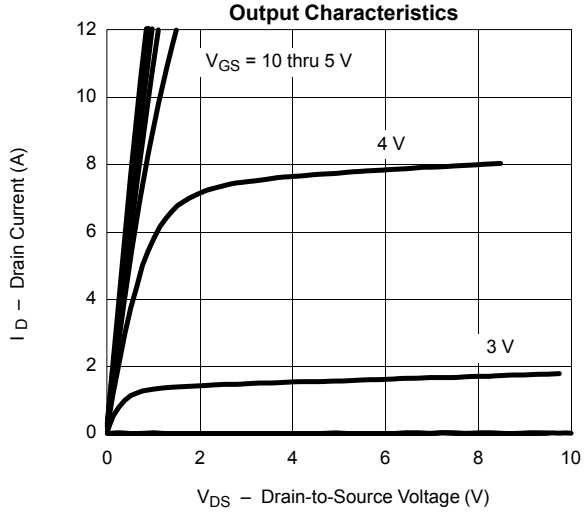
■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250u A,V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-1	μA
		V_{DS}=-24V, V_{GS}=0V, T_J=55℃			-10	
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=-250 μA	-1.0		-3.0	V
Static Drain-Source On-Resistance *1	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3A			50	mΩ
		V_{GS}=-4.5V, I_D=-2.5A			70	
On state drain current *1	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V	-6			A
Forward Transconductance *1	g_{FS}	V_{DS}=-10V, I_D=-3A		4.5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		565		pF
Output Capacitance	C_{oss}			126		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	V_{GS}=-15V, V_{DS}=-15V, I_D=-3A		10	15	nC
Gate Source Charge	Q_{gs}			1.9		
Gate Drain Charge	Q_{gd}			2		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=15Ω,R_{GEN}=6Ω I_D=-1.0A		10	20	ns
Turn-On Rise Time	t_r			9	20	
Turn-Off DelayTime	$t_{d(off)}$			27	50	
Turn-Off Fall Time	t_f			7	16	
Maximum Body-Diode Continuous Current	I_S				-1.25	A
Diode Forward Voltage	V_{SD}	I_S=-1.25A,V_{GS}=0			-1.2	V

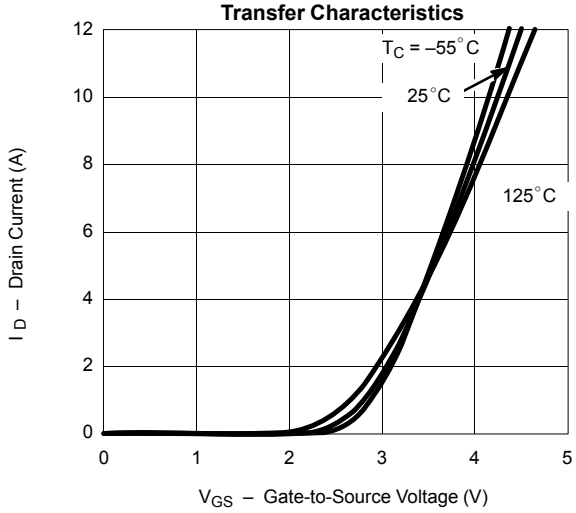
*1Pulse test: PW ≤ 300us duty cycle ≤ 2%.

■ Typical Characterisitics

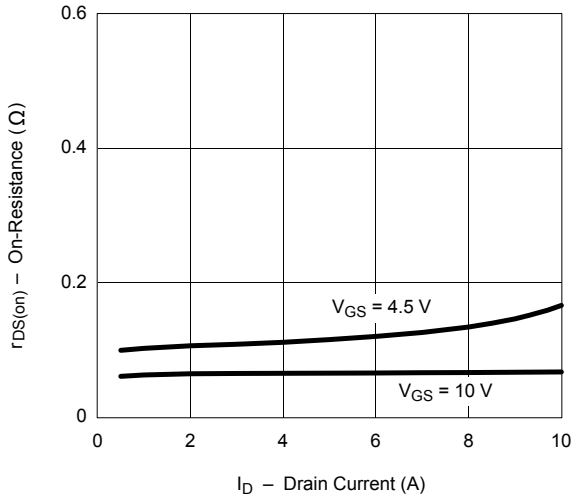
Output Characteristics



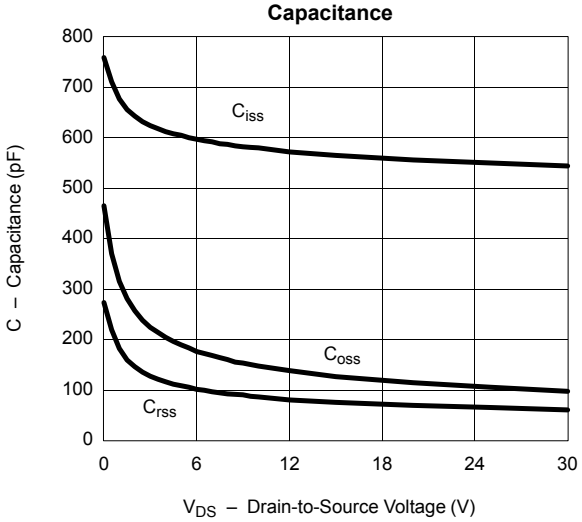
Transfer Characteristics



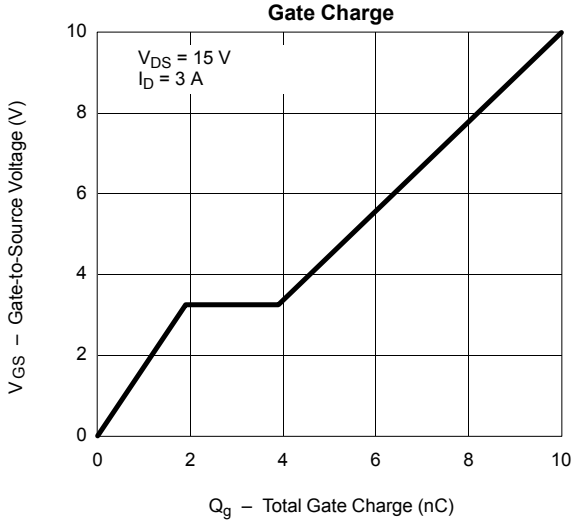
On-Resistance vs. Drain Current



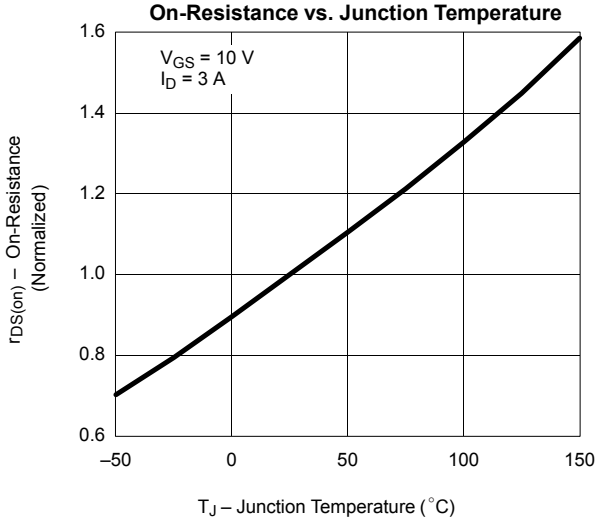
Capacitance



Gate Charge

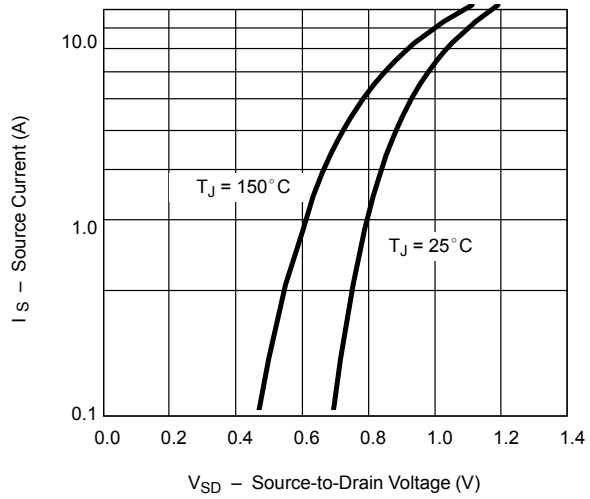


On-Resistance vs. Junction Temperature

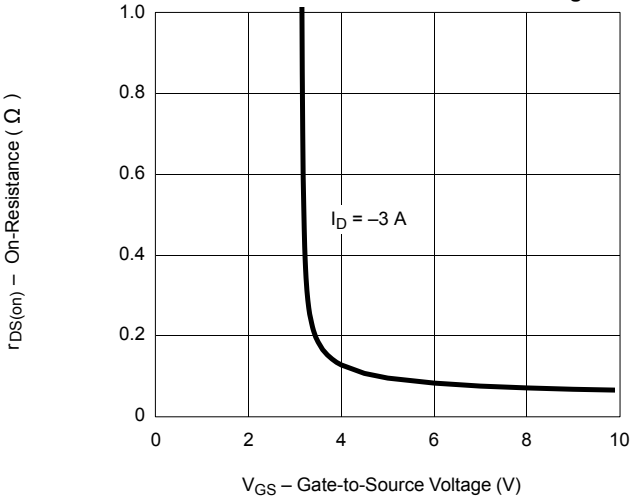


■ Typical Characterisitics

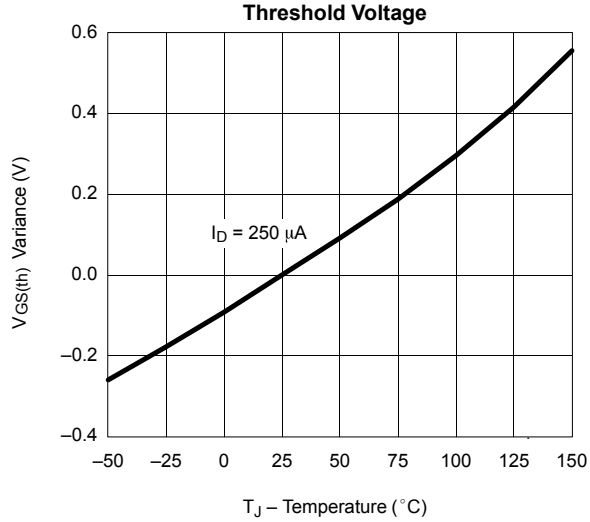
Source-Drain Diode Forward Voltage



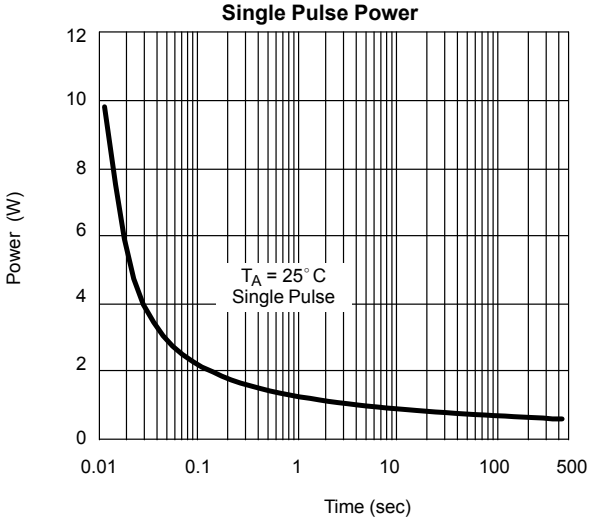
On-Resistance vs. Gate-to-Source Voltage



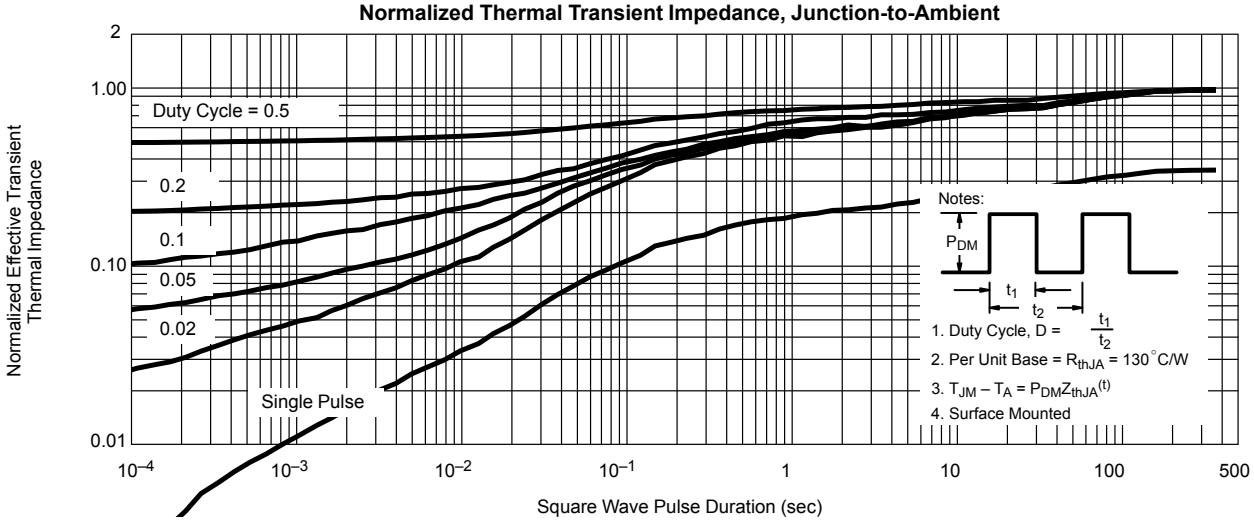
Threshold Voltage



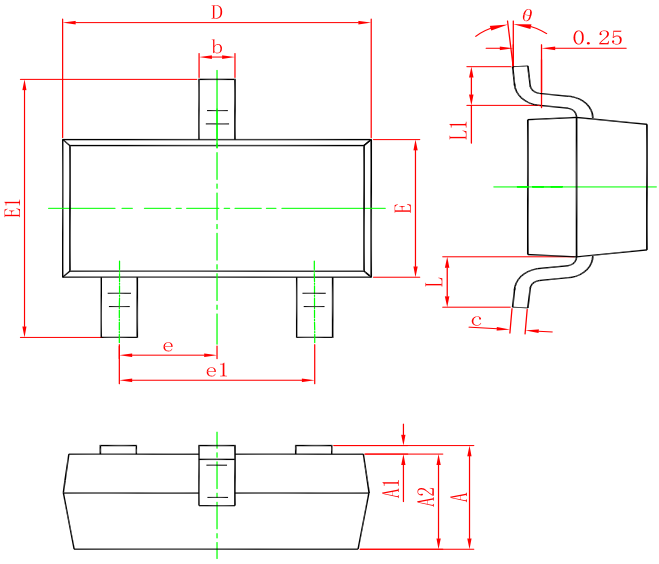
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

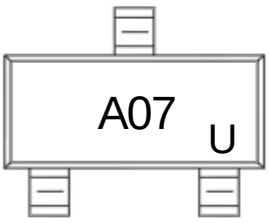


SOT-23 PACKAGE OUTLINE DIMENSIONS



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 SI2307A	SOT-23	3000	Tape and reel

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