

1.Description

The SI2307A uses advanced trench technology to provide excellent $R_{DS(ON)}$, and low gate charge. This device is suitable for use as a load switch or in PWM applications.

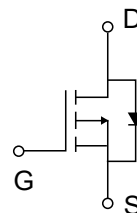
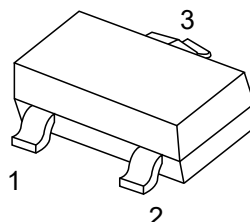
2.Features

- $V_{DS(V)} = -30V$
- $I_D = -3A (V_{GS} = -10V)$
- $R_{DS(ON)} < 50m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 70m\Omega (V_{GS} = -4.5V)$

3.Pinning information

Pin	Symbol	Description
1	G	GATE
2	S	SOURCE
3	D	DRAIN

SOT-23



4.Absolute Maximum Ratings $T_A = 25^\circ C$

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_A = 25^\circ C$	I_D	-3	A
	$T_A = 70^\circ C$		-2.5	
Pulsed Drain Current		I_{DM}	-12	
Power Dissipation	$T_A = 25^\circ C$	P_D	1.25	W
	$T_A = 70^\circ C$		0.8	
Thermal Resistance.Junction- to-Ambient	$t \leq 10sec$	R_{thJA}	100	$^\circ C/W$
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{STG}	-55 to 150	$^\circ C$



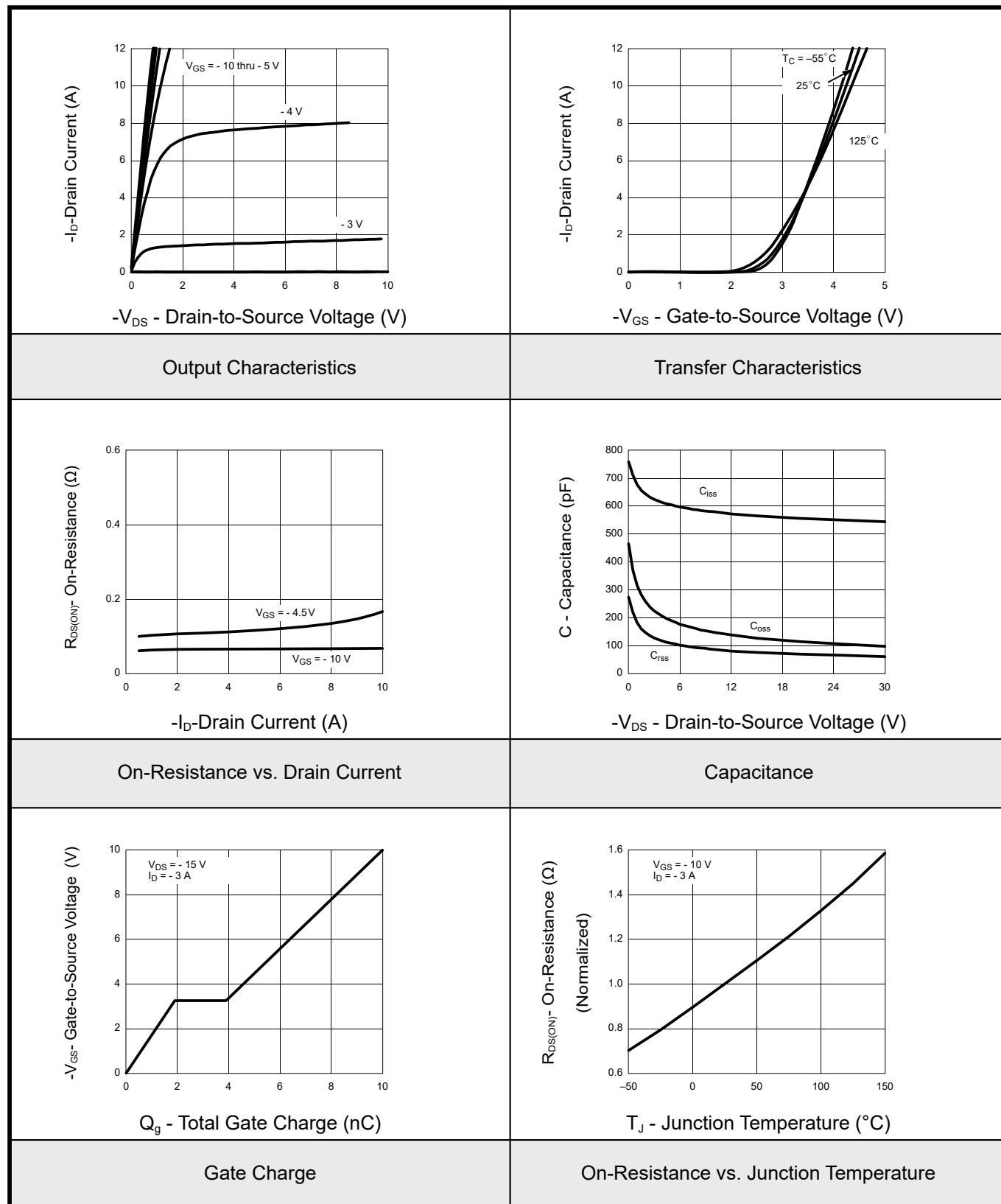
5. Electrical Characteristics $T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
		$V_{DS} = -24\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 55^\circ\text{C}$			-10	
Gate-Body leakage current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$	-1		-3	V
Static Drain-Source On-Resistance *1	$R_{DS(on)}$	$V_{GS} = -10\text{V}$, $I_D = -3\text{A}$			50	m Ω
		$V_{GS} = -4.5\text{V}$, $I_D = -2.5\text{A}$			70	
On state drain current *1	$I_{D(on)}$	$V_{GS} = -10\text{V}$, $V_{DS} = -5\text{A}$	-6			A
Forward Transconductance *1	g_{FS}	$V_{DS} = -10\text{V}$, $I_D = -3\text{A}$		4.5		S
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = -15\text{V}$, $f = 1\text{MHz}$		565		pF
Output Capacitance	C_{oss}			126		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	$V_{DS} = -15\text{V}$		10	15	nC
Gate Source Charge	Q_{gs}	$V_{GS} = -15\text{V}$		1.9		
Gate Drain Charge	Q_{gd}	$I_D = -3\text{A}$		2		
Turn-On DelayTime	$t_{D(on)}$	$V_{GS} = -10\text{V}$, $V_{DS} = -15\text{V}$ $R_L = 15\Omega$, $R_{GEN} = 6\Omega$ $I_D = -1\text{A}$		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}	$I_S = -1.25\text{A}$, $V_{GS} = 0\text{V}$			-1.2	V

*1Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.

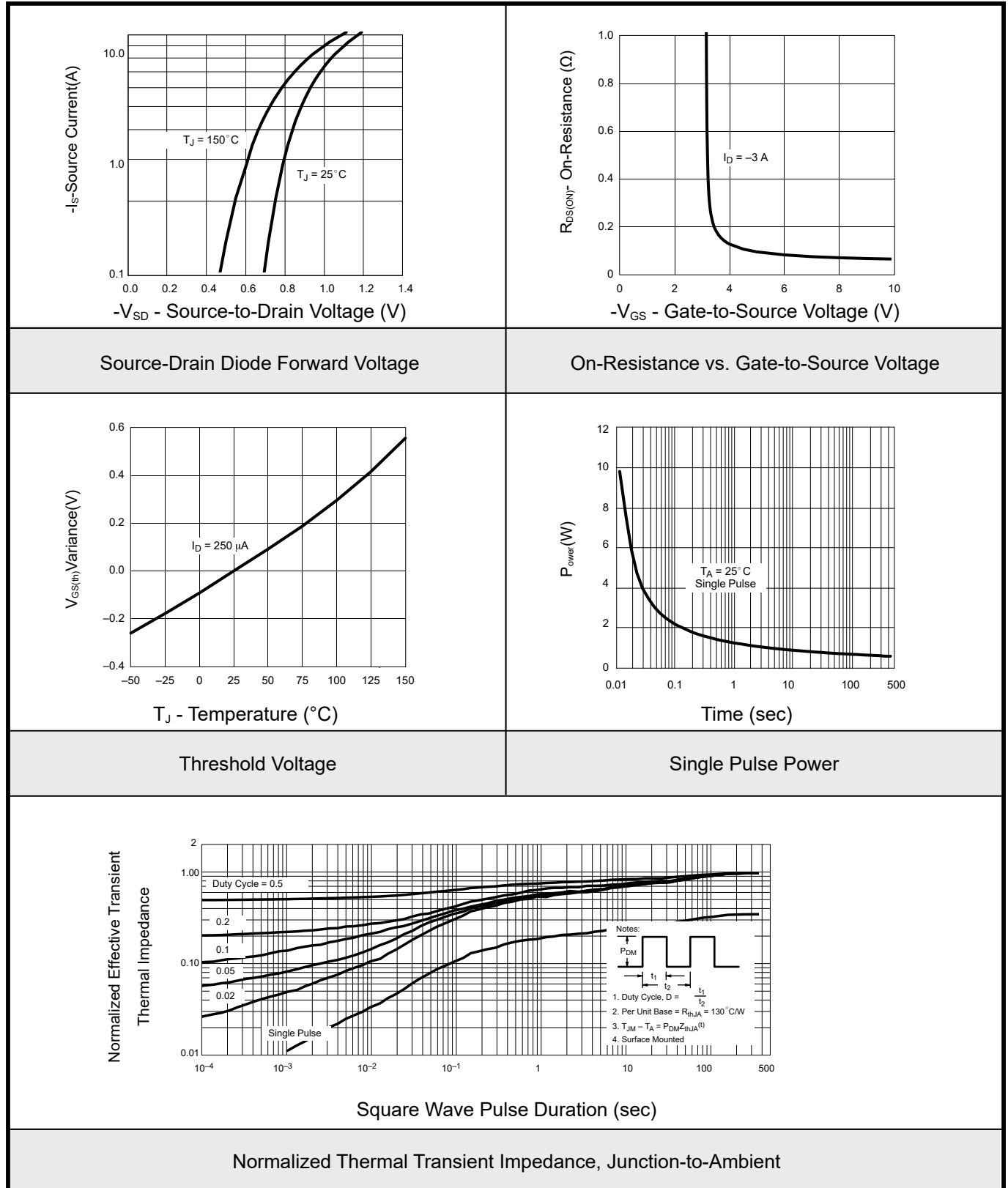


6.1 Typical Characteristics



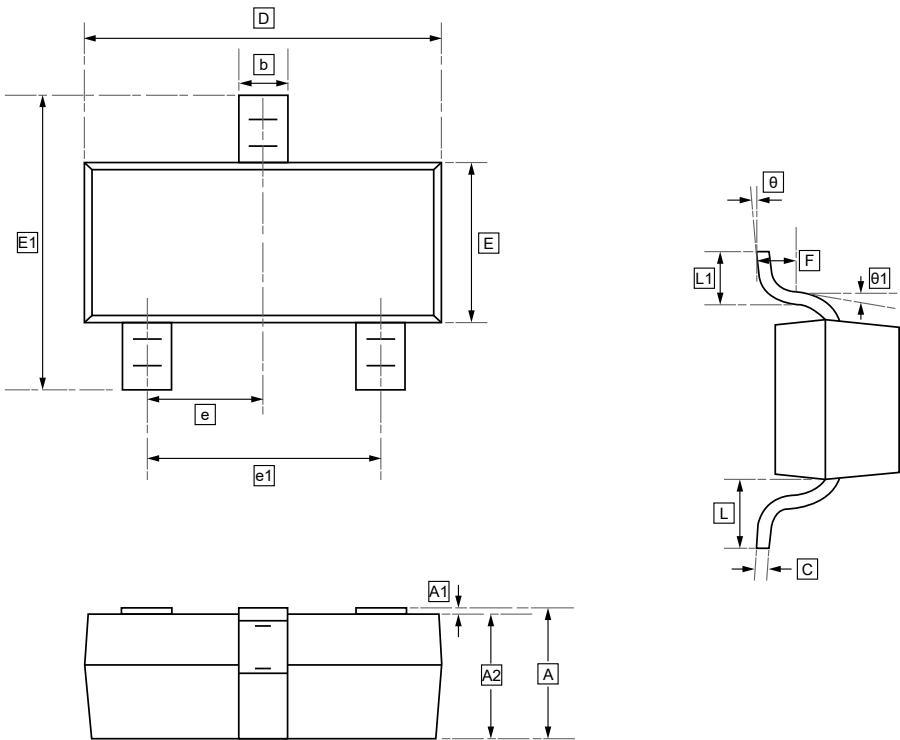


6.2 Typical Characteristics





7.SOT-23 Package Outline Dimensions



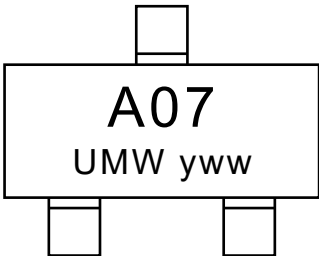
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	C	D	E	E1	e	e1	L	L1
Min	0.90	0.00	0.90	0.30	0.08	2.80	1.20	2.25	0.95	1.80	0.55	0.30
Max	1.15	0.10	1.05	0.50	0.15	3.00	1.40	2.55	TYP.	2.00	REF	0.50

Symbol	F	θ	θ1
Min	0.25	0°	2°
Max		8°	12°



8.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW SI2307A	SOT-23	3000	Tape and reel



9.Disclaimer

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