

1.Description

The SI2305A 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.

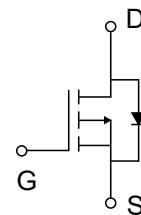
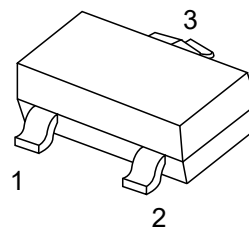
2.Features

- $V_{DS(V)} = -20V$
- $R_{DS(ON)} < 40m\Omega (V_{GS} = -4.5V, I_D = -4.2A)$
- $R_{DS(ON)} < 50m\Omega (V_{GS} = -2.5V, I_D = -3.4A)$

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	Maximum	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 12	V
Continuous Drain Current	$T_A = 25^\circ C$	I_D	-4.2	A
	$T_A = 70^\circ C$		-3.4	
Pulsed Drain Current		I_{DM}	-10	
Power Dissipation	$T_A = 25^\circ C$	P_D	1.38	W
	$T_A = 70^\circ C$		0.8	
Thermal Resistance.Junction-to-Ambient		$R_{\theta JA}$	90	$^\circ C/W$
Operating junction and storage temperature range		T_J, T_{STG}	-55 to 150	$^\circ C$



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

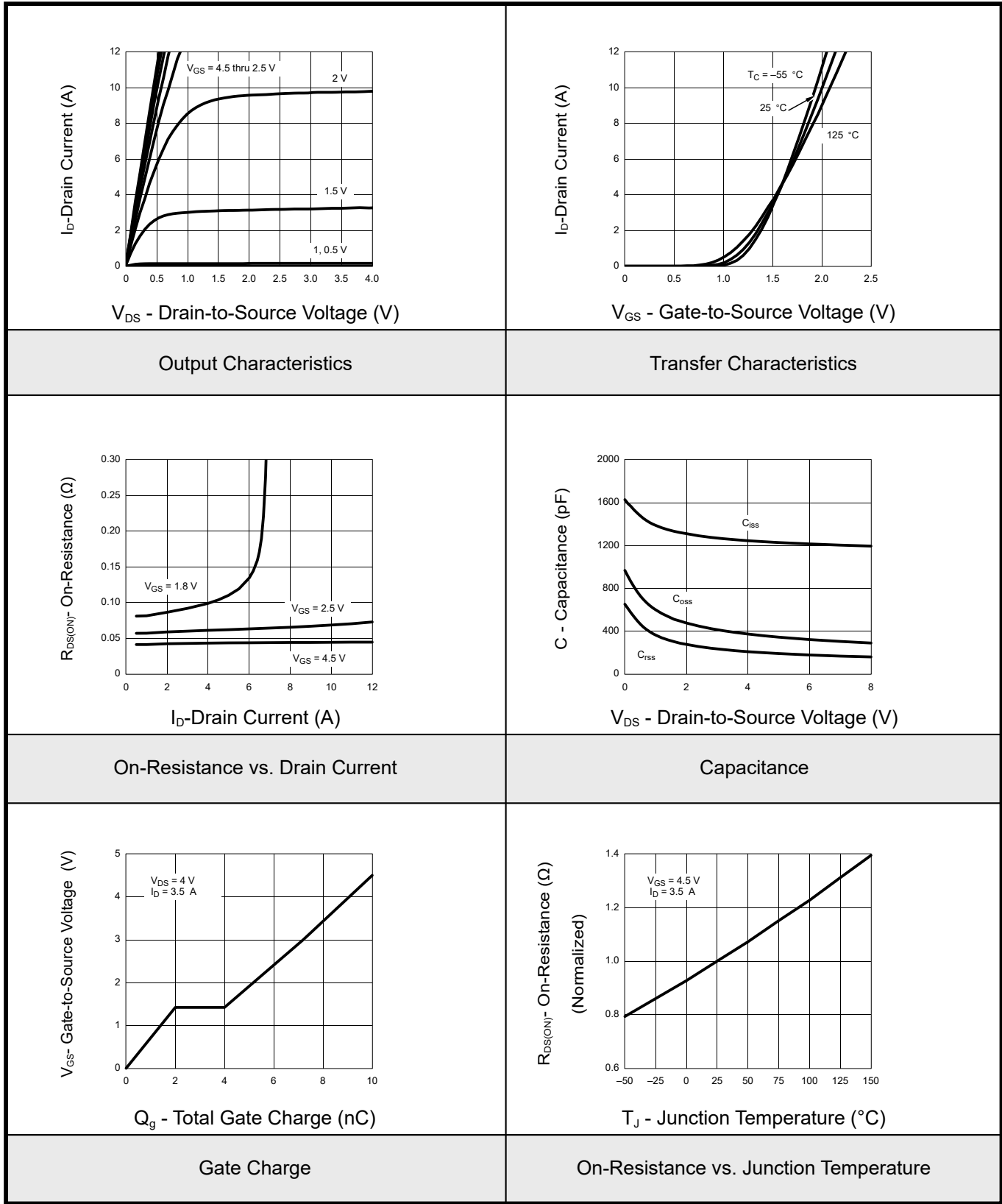
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = -10\mu\text{A}$, $V_{GS} = 0\text{V}$	-20			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$	-0.5			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
		$V_{DS} = -16\text{V}$, $V_{GS} = 0\text{V}$, $T_J = 55^\circ\text{C}$			-10	μA
Gate-body leakage	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 12\text{V}$			± 100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -4.5\text{V}$, $I_D = -4.2\text{A}$			40	m Ω
		$V_{GS} = -2.5\text{V}$, $I_D = -3.4\text{A}$			60	
On-state drain current	$I_{D(on)}$	$V_{DS} \leq -5\text{V}$, $V_{GS} = -4.5\text{V}$	-6			A
		$V_{DS} \leq -5\text{V}$, $V_{GS} = -2.5\text{V}$	-3			
Forward transconductance	g_{FS}	$V_{DS} = -4.5\text{V}$, $I_D = -2.8\text{A}$		9		S
Input capacitance *	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = -15\text{V}$, $f = 1\text{MHz}$		740		pF
Output capacitance *	C_{oss}			167		
Reverse transfer capacitance *	C_{rss}			126		
Total gate charge *	Q_g	$V_{DS} = -16\text{V}$		10.6		nC
Gate-source charge *	Q_{gs}	$V_{GS} = -4.5\text{V}$		2.32		
Gate-drain charge *	Q_{gd}	$I_D = -4.2\text{A}$		3.68		
Turn - On Delay Time	$t_{D(on)}$	$V_{DD} = -15\text{V}$, $R_L = 3.6\Omega$ $I_D = -4.2\text{A}$ $V_{GEN} = -10\text{V}$, $R_G = 6\Omega$		5.9		ns
Turn - On Rise Time	t_r			3.6		ns
Turn - Off Delay Time	$t_{D(off)}$			32.4		ns
Turn - Off Fall Time	t_f			2.6		ns
Continuous source current (diode conduction) *	I_S			-1.6		A
Diode forward voltage	V_{SD}	$I_S = -1.2\text{A}$, $V_{GS} = 0\text{V}$				V

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

-1.2

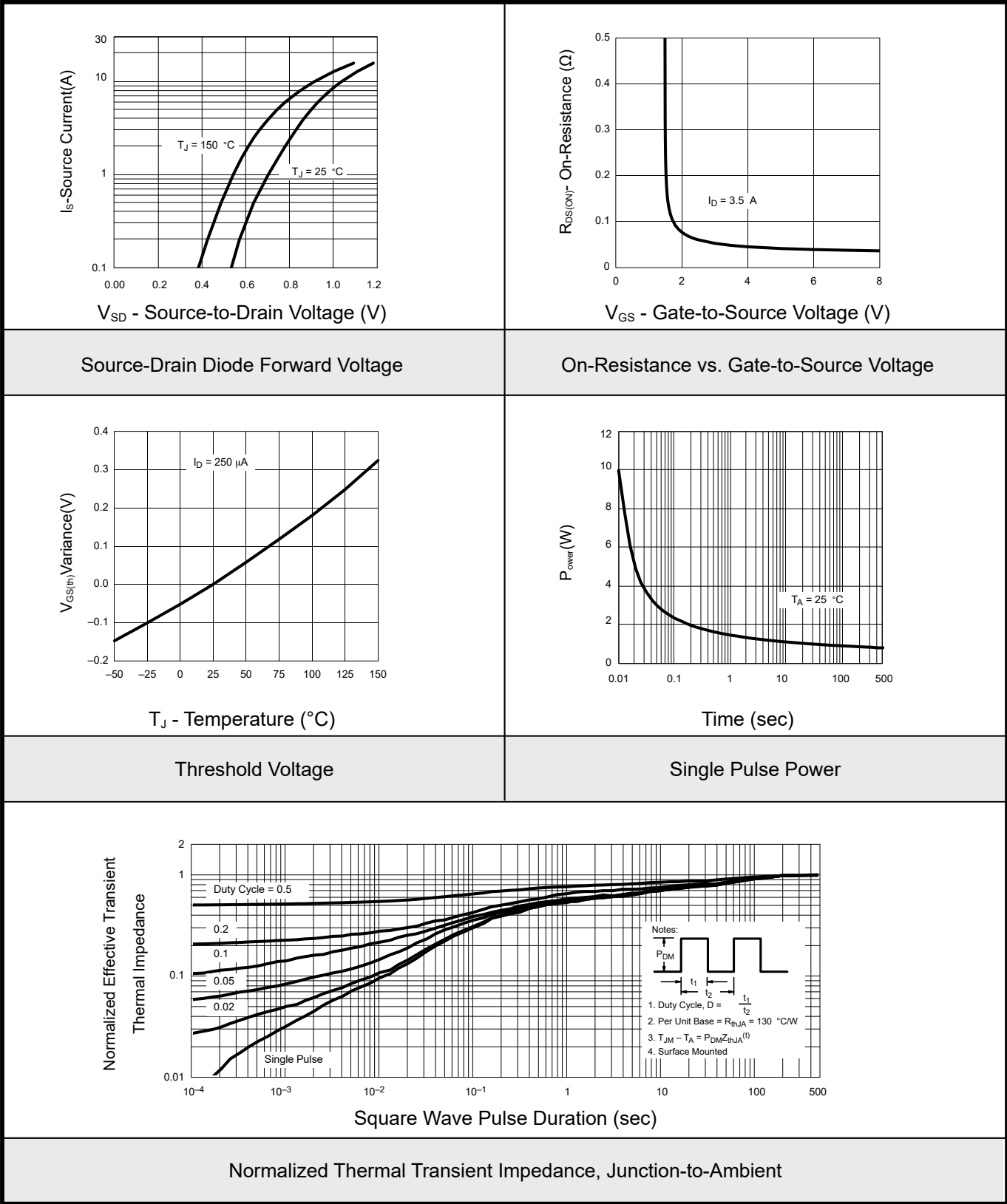


6.1Typical Characteristics



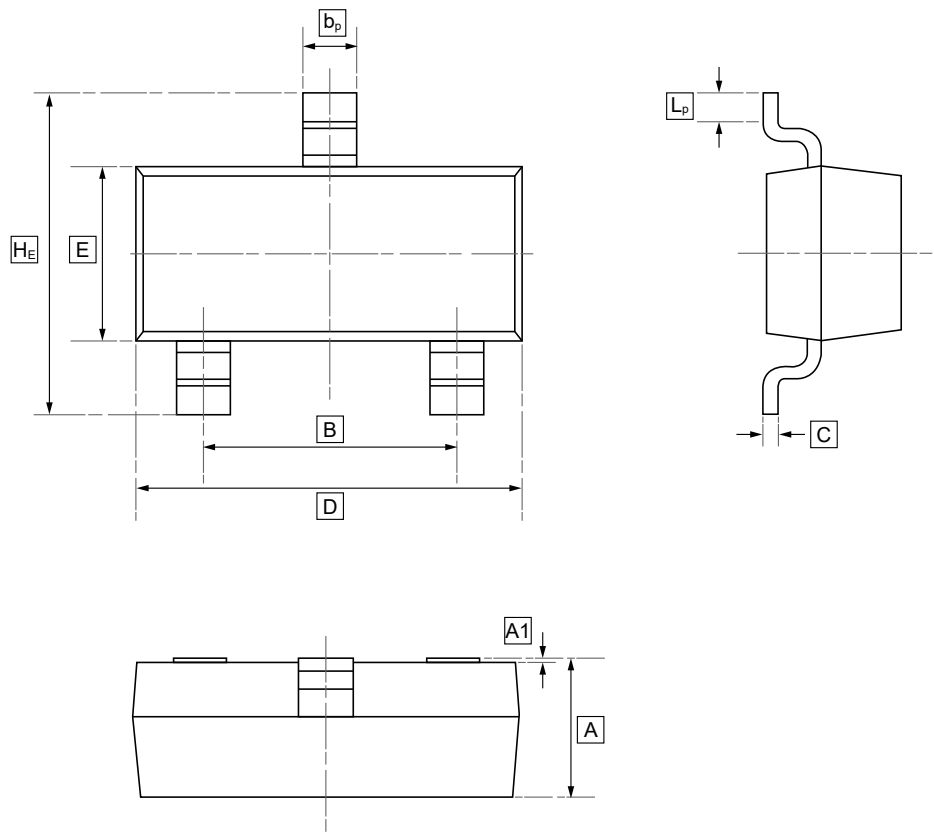


6.2Typical Characteristics





7.SOT-23 Package Outline Dimensions

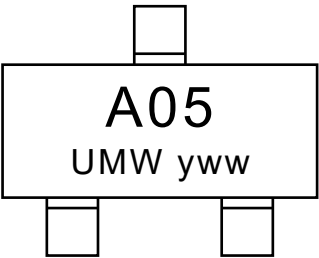


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b _p	C	D	E	H _E	A1	L _p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50



8.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW SI2305A	SOT-23	3000	Tape and reel



9.Disclaimer

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