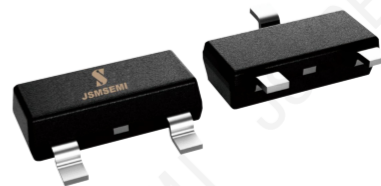


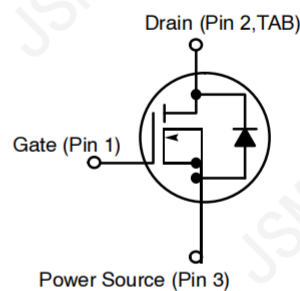
Features

- Surface-mounted package
- Advanced trench cell design
- Extremely low threshold voltage
- ESD protected (HBM > 2KV)



Quick reference

- $BV \geq 60\text{ V}$
- $P_{tot} \leq 0.83\text{ W}$
- $I_D \leq 0.5\text{ A}$
- $R_{DS(ON)} \leq 3\ \Omega @ V_{GS} = 10\text{ V}$
- $R_{DS(ON)} \leq 4\ \Omega @ V_{GS} = 4.5\text{ V}$



Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_A = 25\text{ }^\circ\text{C}$	-	60 V	
V_{GS}	Gate-Source Voltage	$T_A = 25\text{ }^\circ\text{C}$	-	$\pm 20\text{ V}$	
I_D^*	Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	0.5 A	
$I_{DM}^{*,**}$	Pulsed Drain Current	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	1.7 A	
P_{tot}^*	Total Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	-	0.83	W
		$T_A = 100\text{ }^\circ\text{C}$	-	0.33	
T_{stg}	Storage Temperature - 55 150				$^\circ\text{C}$
T_J	Junction Temperature - 150				$^\circ\text{C}$
I_S^*	Diode Forward Current	$T_A = 25\text{ }^\circ\text{C}$	-	0.4 A	
$R_{\theta JA}^*$	Thermal Resistance- Junction to Ambient - 150				$^\circ\text{C} / \text{W}$

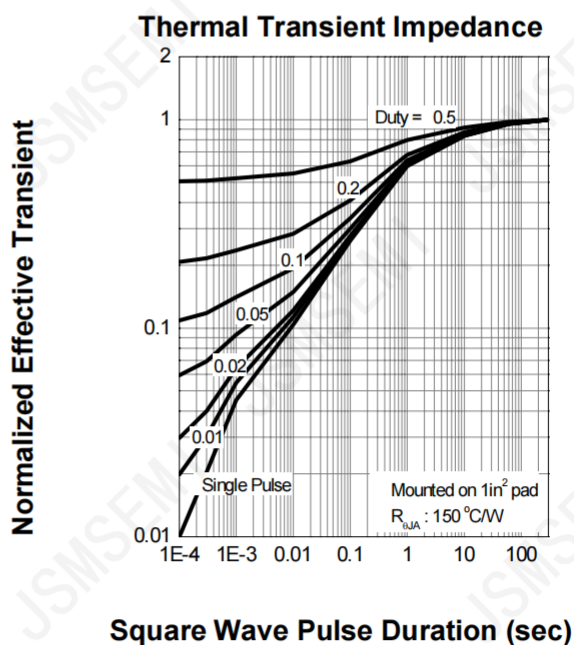
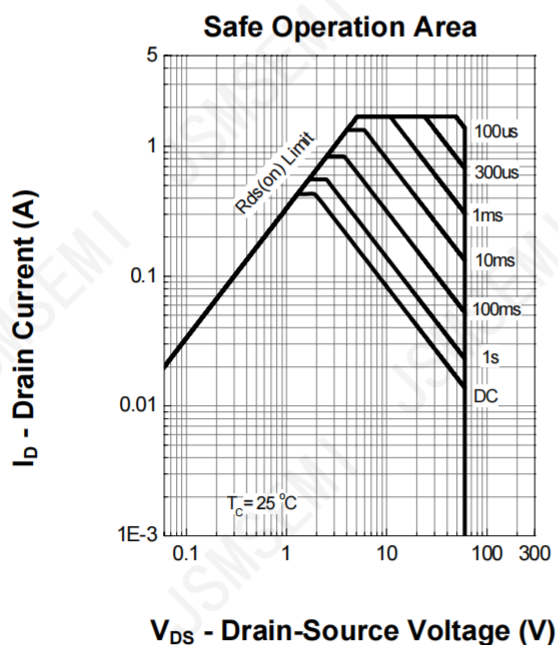
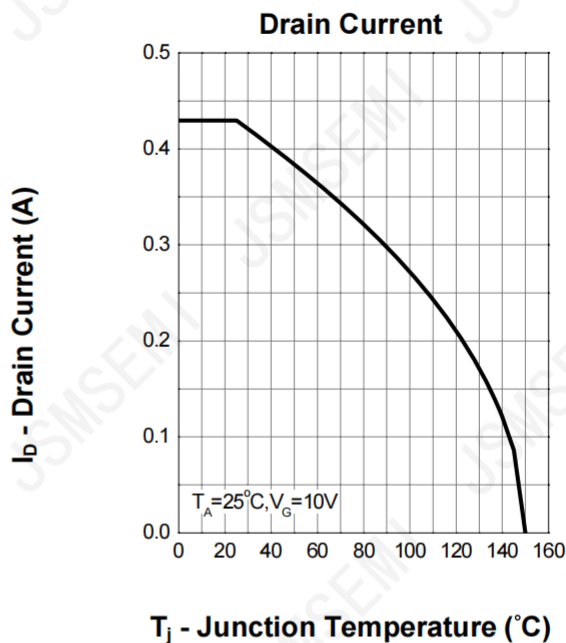
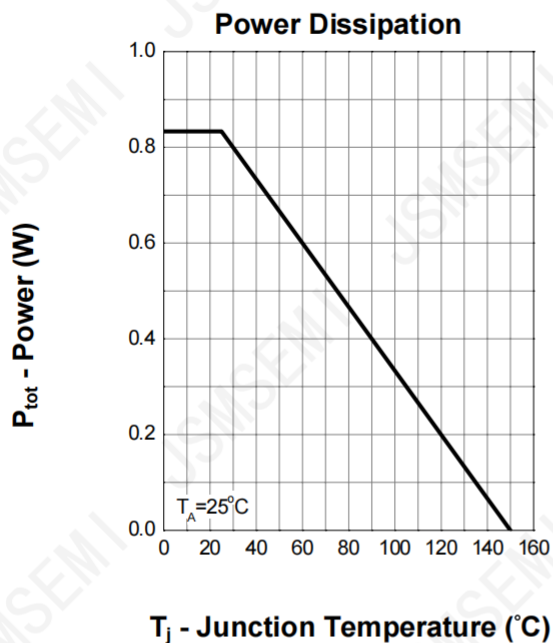
Notes: * Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$ ** Pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$

Electrical Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

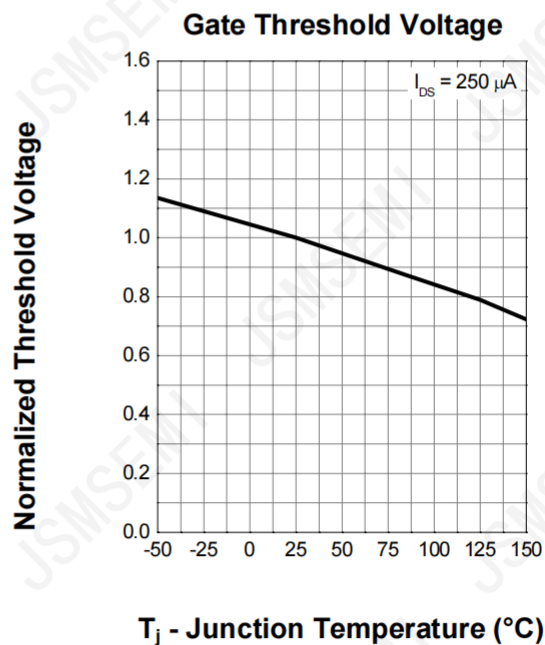
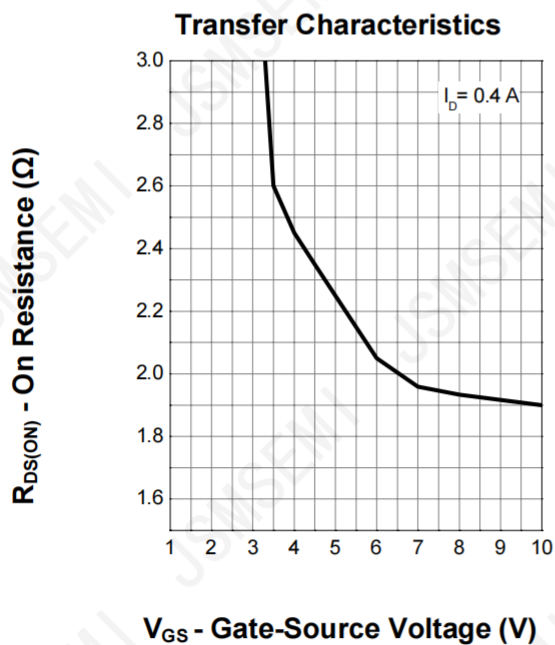
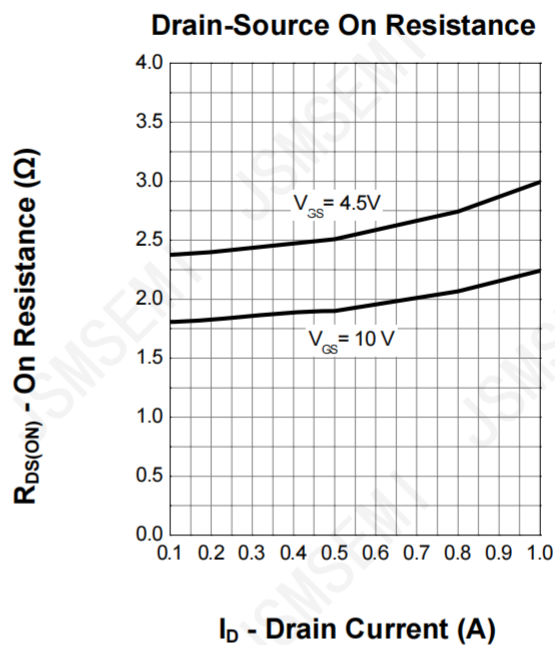
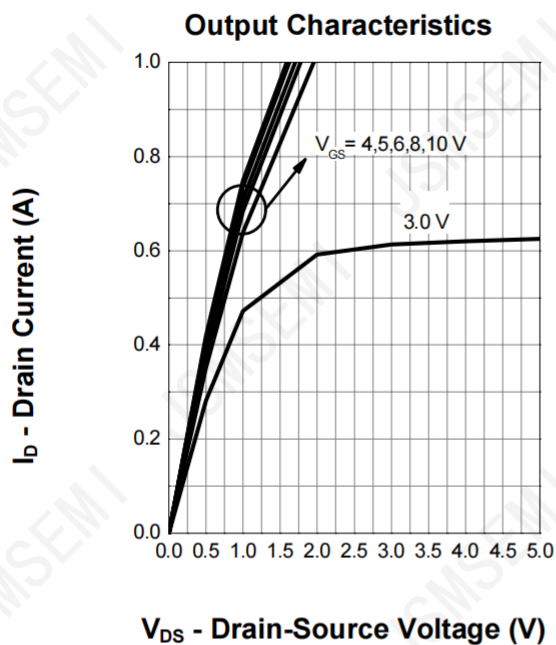
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	1.0	1.6	2.5	V
I _{DSS}	Drain Leakage Current	V _{DS} = 48 V, V _{GS} = 0 V	-	-	1	μA
		T _J = 85 °C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ± 20 V, V _{DS} = 0 V	-	-	± 10	μA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 10 V, I _{DS} = 0.4 A		1.9	3.0	Ω
		V _{GS} = 4.5 V, I _{DS} = 0.3 A	-	2.4	4.0	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 0.4 A, V _{GS} = 0 V	-	0.7	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} = 0.4 A, dI _{SD} / dt = 100 A / μs	-	40	-	ns
Q _{rr}	Reverse Recovery Charge		-	40	-	nC
Dynamic Characteristics ^b						
R _G	Gate Resistance	V _{GS} = V _{DS} = 0 V, F = 1 MHz	-	130	-	Ω
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 25 V Frequency = 1 MHz	-	30	-	pF
C _{oss}	Output Capacitance		-	4.2	-	
C _{rss}	Reverse Transfer Capacitance		-	3	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 30 V, V _{GEN} = 10 V, R _G = 25 Ω, R _L = 150 Ω, I _{DS} = 0.2 A	-	3.9	9	ns
t _r	Turn-on Rise Time		-	3.5	8	
t _{d(off)}	Turn-off Delay Time		-	16	40	
t _f	Turn-off Fall Time		-	10	20	
Q _g	Total Gate Charge	V _{GS} = 4.5 V, V _{DS} = 10 V, I _{DS} = 0.4 A	-	305	-	pC
Q _{gs}	Gate-Source Charge		-	85	-	
Q _{gd}	Gate-Drain Charge		-	205	-	

Notes : a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ b : Guaranteed by design, not subject to production testing

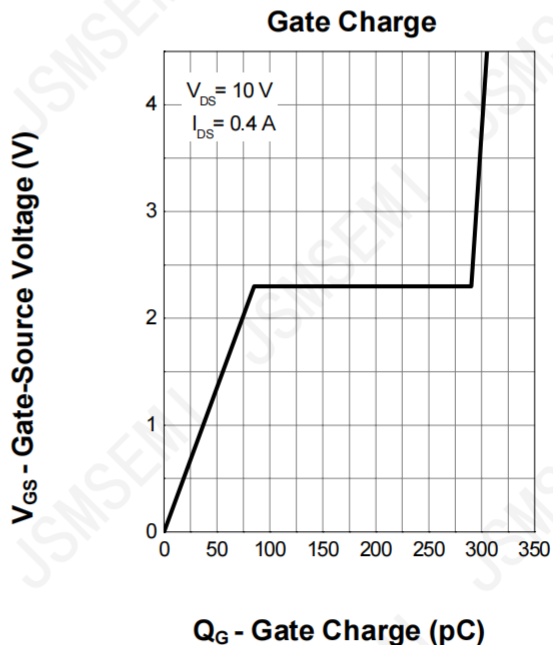
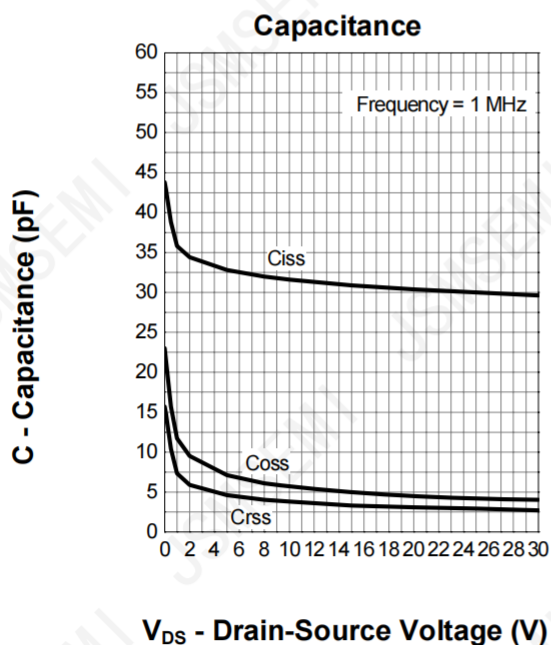
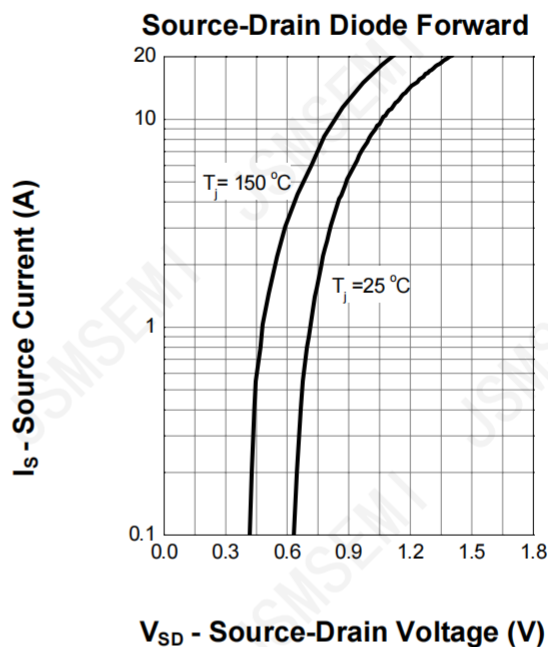
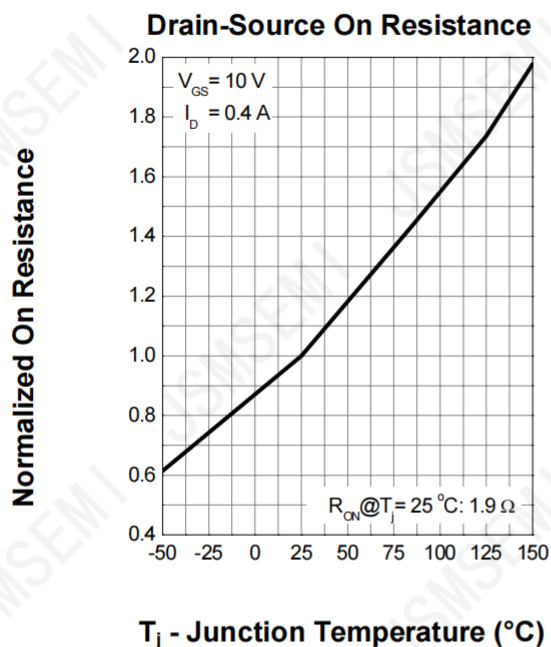
Typical Characteristics



Typical Characteristics (cont.)

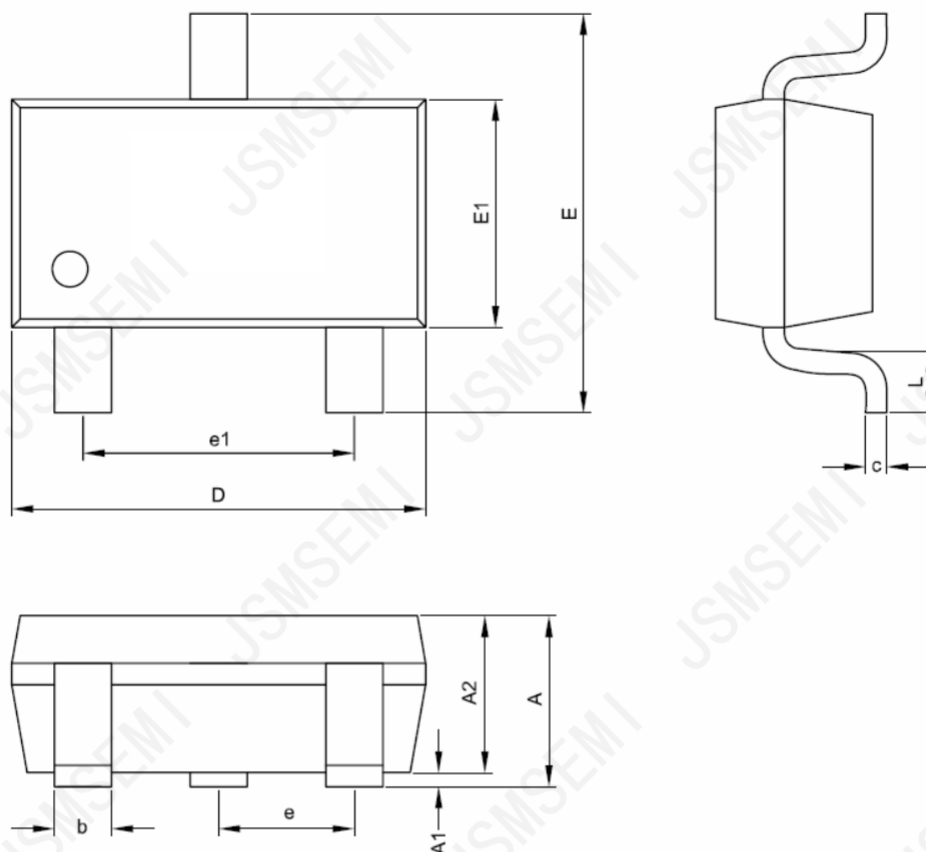


Typical Characteristics (cont.)



Package Dimensions

SOT-23



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	—	1.12
A1	0.00	0.1
A2	0.90	1.02
D	2.90 BSC	
E	2.40 BSC	
E1	1.20	1.40
c	0.08	0.25
b	0.30	0.50
e	0.95 BSC	
e1	1.90 BSC	
L	0.20	0.60

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2024

Important Notice

JSMSEMI Semiconductor (JSMSEMI) PRODUCTS ARE NEITHER DESIGNED NOR INTENDED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS UNLESS THE SPECIFIC JSMSEMI PRODUCTS ARE SPECIFICALLY DESIGNATED BY JSMSEMI FOR SUCH USE. BUYERS ACKNOWLEDGE AND AGREE THAT ANY SUCH USE OF JSMSEMI PRODUCTS WHICH JSMSEMI HAS NOT DESIGNATED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS IS SOLELY AT THE BUYER' S RISK.

JSMSEMI assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using JSMSEMI products.

Resale of JSMSEMI products or services with statements diferent from or beyond the parameters stated by JSMSEMI for that product or service voids all express and any implied warranties for the associated JSMSEMI product or s ervice. JSMSEMI is not responsible or liable for any such statements.

JSMSEMI All Rights Reserved. Information and data in this document are owned by JSMSEMI wholly and may not be edited, reproduced, or redistributed in any way without the express written consent from JSMSEMI.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the JSMSEMI product that you intend to use.

For additional information please contact Kevin@jsemsemi.com or visit www.jsemsemi.com