

Product Summary

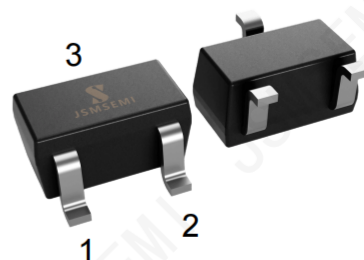
- V_{DS} -60V
- I_D -0.17A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) $<6.3\Omega$
- 100% EAS Tested
- 100% ∇V_{DS} Tested

General Description

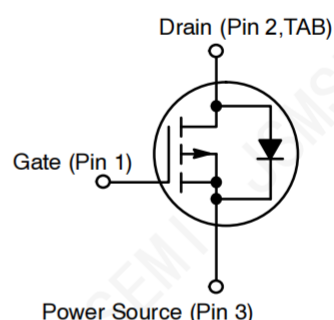
- Trench Power MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers



SOT-323



Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-0.17	A
Pulsed Drain Current (note 1) @ $t_p < 10 \mu s$	I_{DM}	-0.52	A
Power Dissipation	P_D	225	mW
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ\text{C}$
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	$^\circ\text{C}$

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
BSS84AKW,115-JSM	SOT-323	tVT	-55 to 150 $^\circ\text{C}$	1	T&R,3000	Rohs

Electrical Characteristics($T_J=25^{\circ}\text{C}$, unless otherwise noted)

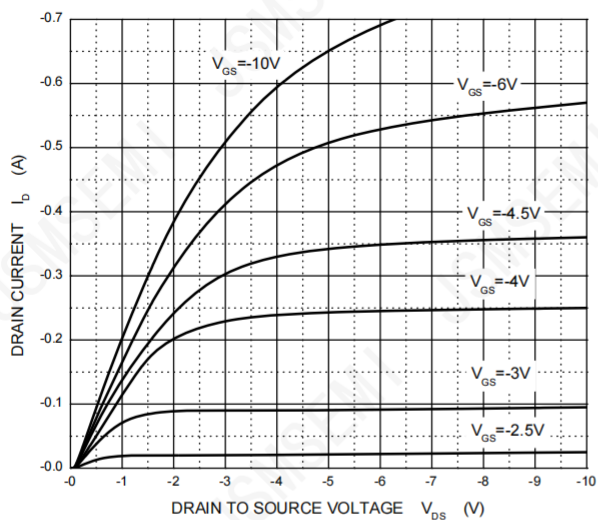
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -50V, V_{GS} = 0V$			-15	μA
		$V_{DS} = -25V, V_{GS} = 0V$			-0.1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 5	μA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.9	-1.6	-2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = -5V, I_D = -0.1A$		4	5.2	Ω
		$V_{GS} = -10V, I_D = -0.1A$		4.8	6.3	Ω
Forward transconductance (note 1)	g_{FS}	$V_{DS} = -25V; I_D = -100mA$	50			mS
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$		30		pF
Output capacitance	C_{oss}			10		pF
Reverse transfer capacitance	C_{rss}			5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V,$ $R_L = 50\Omega, I_D = -2.5A$		2.5		ns
Turn-on rise time	t_r			1		ns
Turn-off delay time	$t_{d(off)}$			16		ns
Turn-off fall time	t_f			8		ns
SOURCE-DRAIN DIODE CHARACTERISTICS						
Continuous Current	I_S				-0.17	A
Pulsed Current	I_{SM}				-0.52	A
Diode forward voltage (note 3)	V_{SD}	$I_S = -0.13A, V_{GS} = 0V$			-2.2	V

Notes :

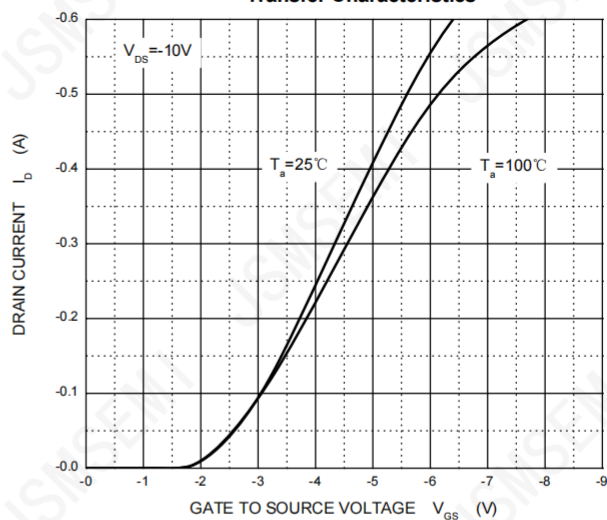
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t \leq 10s$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to producing.

Typical Characteristics

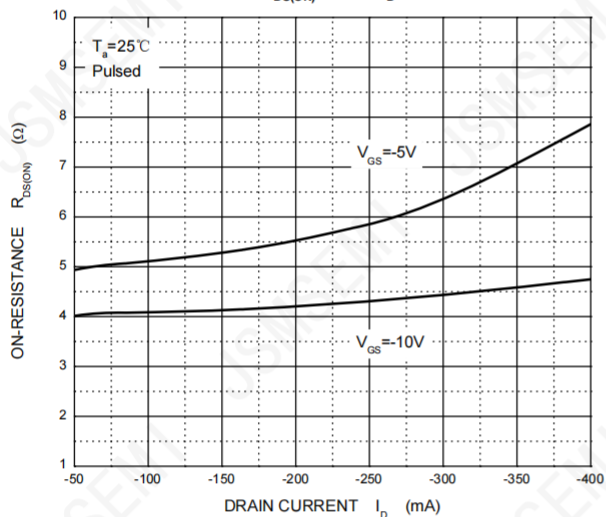
Output Characteristics



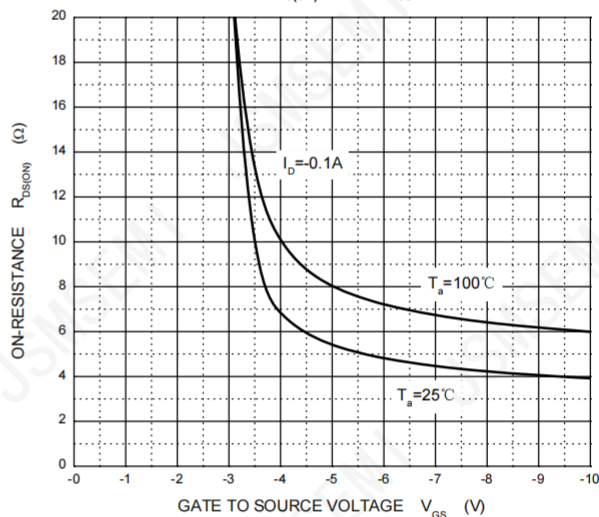
Transfer Characteristics



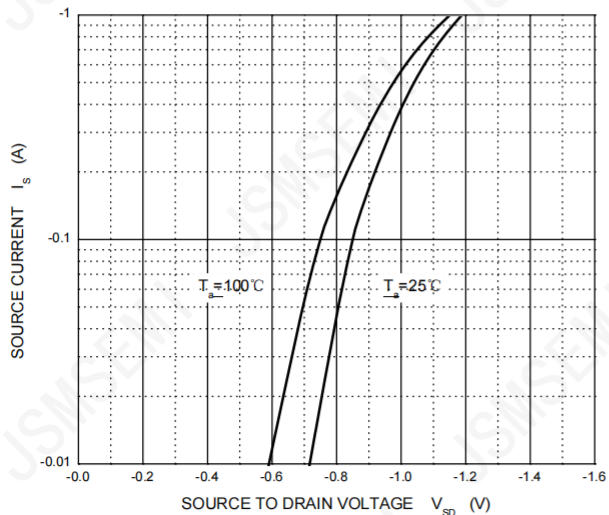
$R_{DS(ON)}$ — I_D



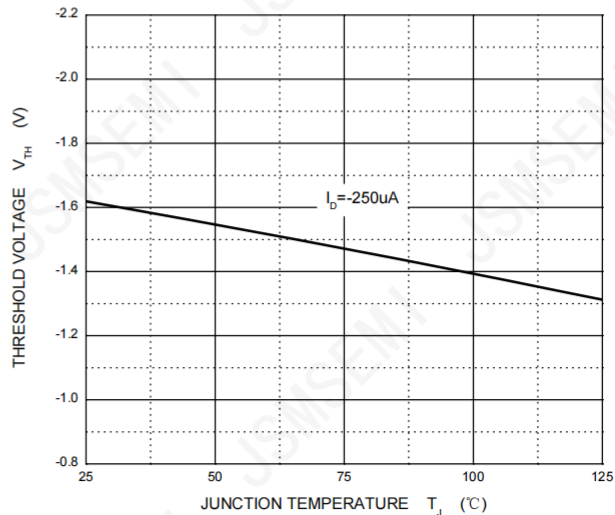
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

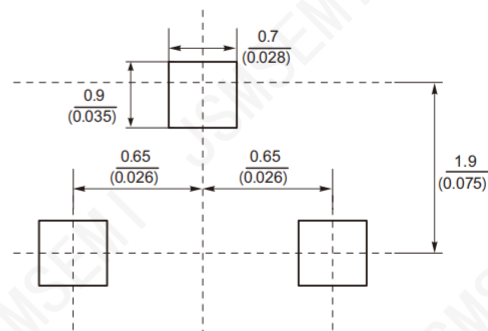
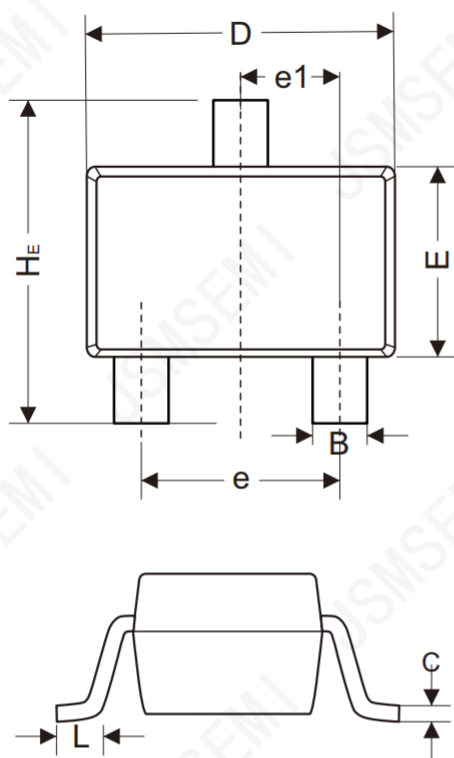


Threshold Voltage

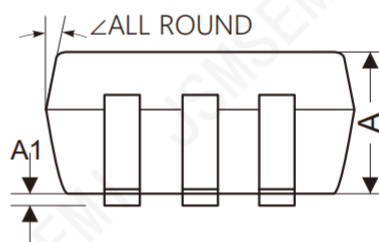


Package Information

SOT-323



RECOMMENDED LAND PATTERN (Unit: mm)



UNIT		A	A1	B	C	D	E	e	e1	L	HE
mm	max	1.00	0.10	0.40	0.25	2.20	1.35	1.40	0.65 (BSC)	0.425	2.40
	min	0.80	0.00	0.30	0.10	1.80	1.15	1.20		REF	2.00
mil	max	39.37	3.94	15.75	9.84	86.61	53.15	55.12	25.59 (BSC)	16.73	94.49
	min	31.50	0.00	11.81	3.94	70.87	45.28	47.24		REF	78.74

Revision History

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

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