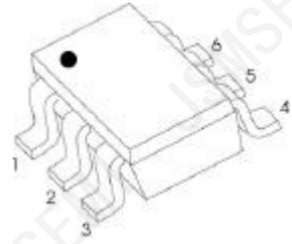


Description

The BSS138BKS,115-JSM is a dual N-channel enhanced MOS field-effect transistor. Uses advanced trench technology and design to provide excellent $R_{\text{os(ow)}}$, with low gate charge. Device is suitable for use in DC-DC conversion, power switch and charging circuit.



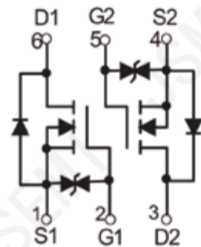
SOT-363

General Features

High density cell design for extremely low $R_{\text{DS(on)}}$
 Rugged and Reliable

Applications

Direct Logic-Level Interface: TTL/CMOS
 Battery Operated Systems
 Solid-State Relays



Equivalent Circuit

Absolute Maximum Ratings (TA=25 °C unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-Source voltage	50	V
V_{GSS}	Gate-Source Voltage	± 20	V
I_{D}	Drain Current-Continuous	0.3	A
P_{D}	Power Dissipation	150	mW
$R_{\theta\text{JA}}$	Thermal Resistance from Junction to Ambient	833	$^{\circ}\text{C}/\text{W}$
T_{J}	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

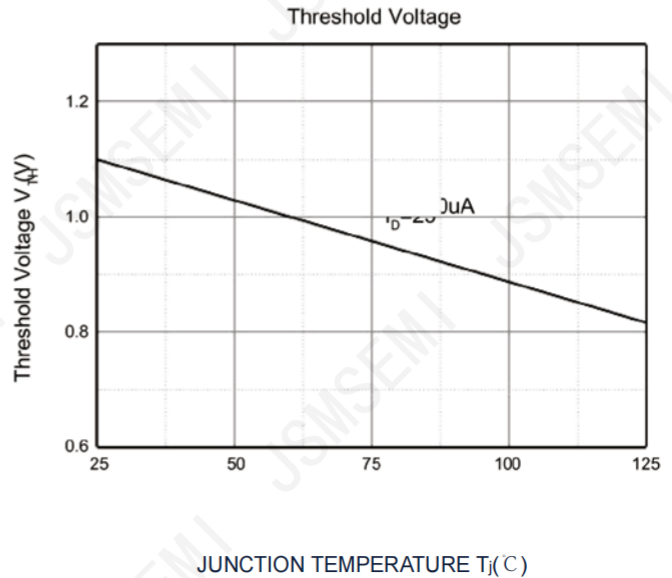
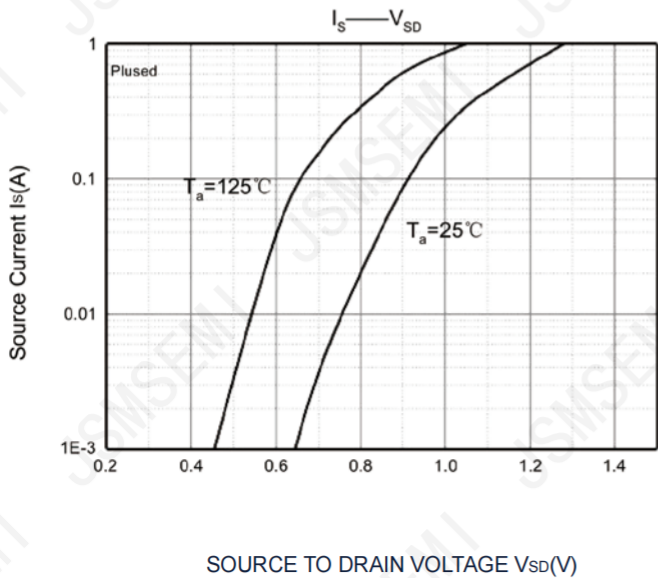
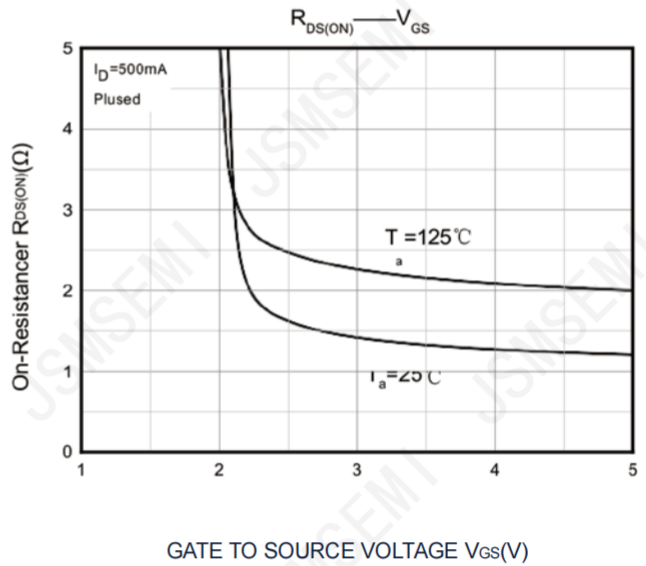
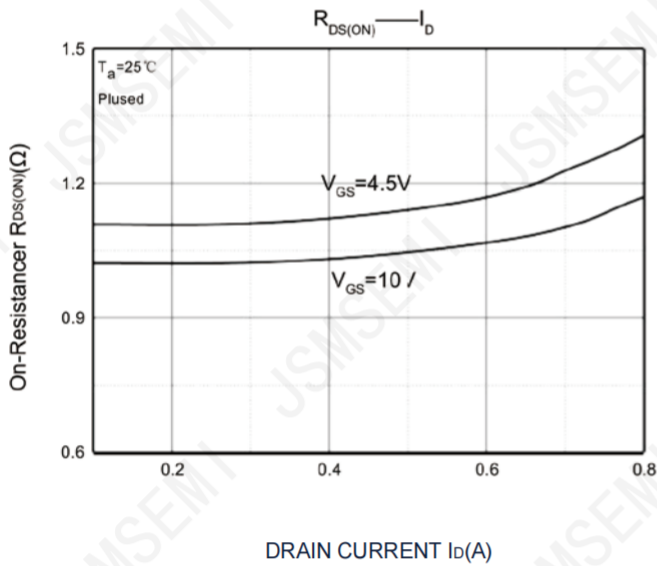
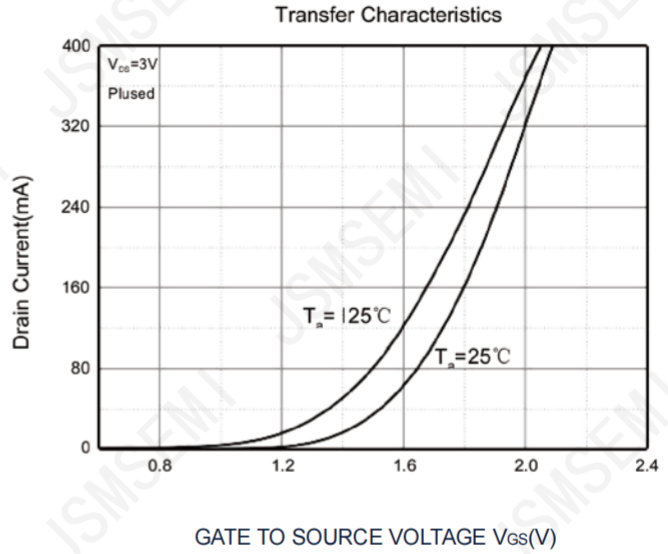
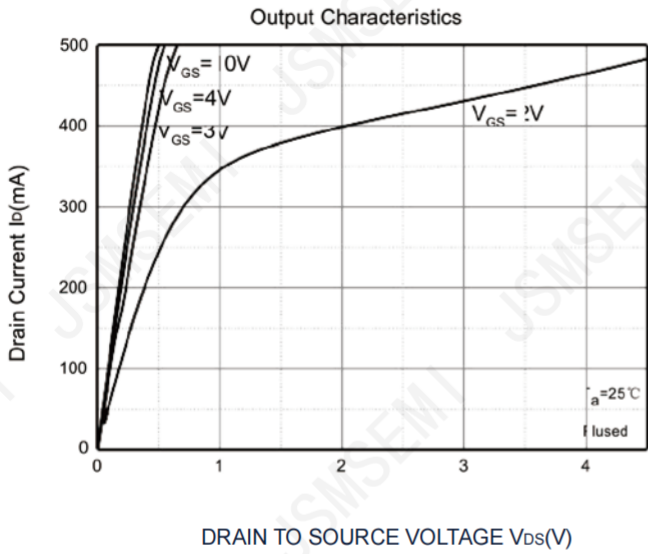
Electrical Characteristics (TA=25°C, unless otherwise noted)

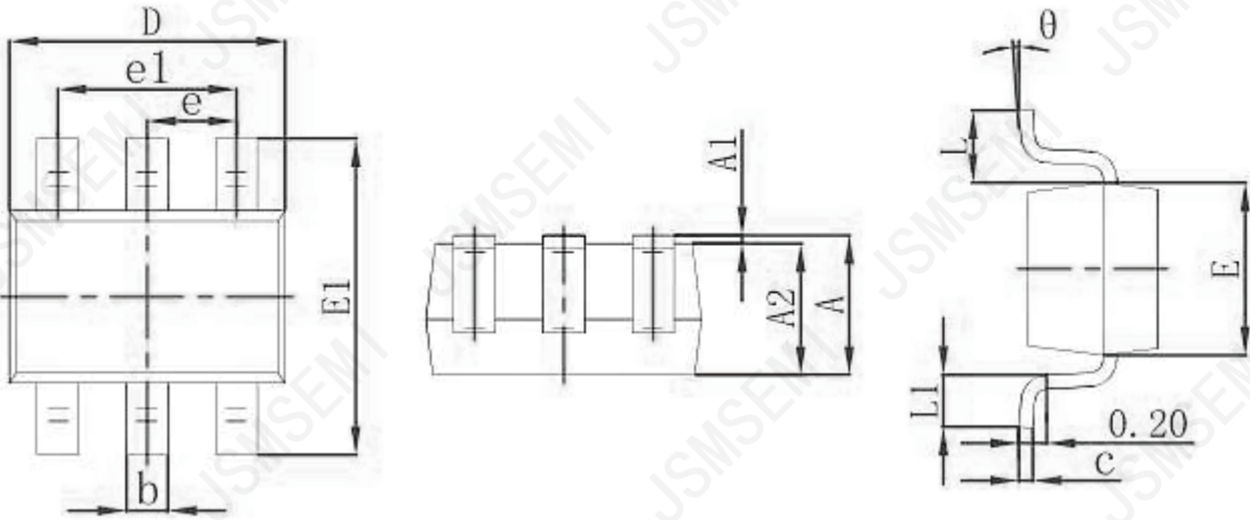
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
STATIC CHARACTERISTICS						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	50	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =50V, V _{GS} =0V	---	---	0.5	μA
I _{GSS}	Gate -Source leakage current	V _{GS} =±20V, V _{DS} =0V	---	---	0.5	μA
V _{GS(th)}	GateThreshold Voltage ¹	V _{DS} =V _{GS} , I _D =1mA	0.8	1.2	1.5	V
R _{DS(on)}	Drain-Source On-Resistance ¹	V _{GS} =10V, I _D =220mA	---	1.9	3.5	Ω
		V _{GS} =4.5V, I _D =220mA	---	2	6.0	
g _{fs}	Forward Transconductance ¹	V _{DS} =10V, I _D =220mA	---	0.15	---	mS
DYNAMIC CHARACTERISTICS ²						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	26.5	---	pF
C _{oss}	Output Capacitance		---	12.9	---	
C _{rss}	Reverse Transfer Capacitance		---	5.9	---	
SWITCHING CHARACTERISTICS ^{1,2}						
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V, I _D =290mA, V _{GS} =10V, R _G =6Ω	---	---	5	ns
T _r	Rise Time		---	---	18	
T _{d(off)}	Turn-Off Delay Time		---	---	36	
T _f	Fall Time		---	---	14	
SOURCE-DRAIN DIODE CHARACTERISTICS ¹						
V _{DS}	Diode Forward voltage	I _S =440mA, V _{GS} =0V	---	---	1.4	V

Notes:

1. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
2. These parameters have no way to verify.

Typical Characteristics



SOT-363 Package Outline Dimensions


Symbol	Dimensions in Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Revision History

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

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