

**Features**

- ESD Protected up to 2KV (HBM)
- High Dense Cell Design For Extremely Low RDS(ON)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

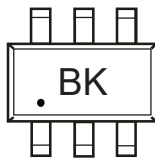
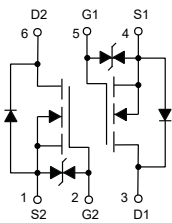
**Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 357°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Drain Current-Continuous	$I_D$	0.22	A
Power Dissipation	$P_D$	0.35	W

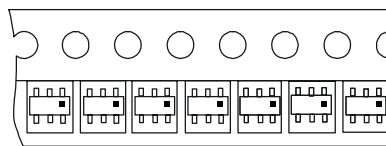
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Internal Structure and Marking Code**



Dot denotes Pin 1

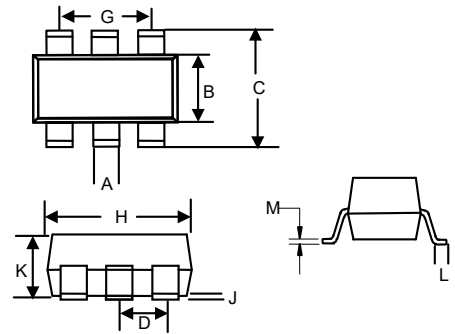
Special packing as below



Feed Direction

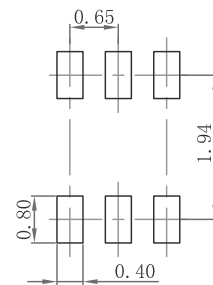
**Dual N-Channel MOSFET**

**SOT-363**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

**Suggested Solder Pad Layout**



**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Threshold Voltage <sup>(Note2)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.0	1.45	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=48V, V_{GS}=0V$			1.0	$\mu A$
Drain-Source On-Resistance <sup>(Note2)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.5A$		1	1.5	$\Omega$
		$V_{GS}=4.5V, I_D=0.2A$		1.1	2.3	
		$V_{GS}=2.5V, I_D=0.1A$		1.6	4.1	
Forward Transconductance <sup>(Note2)</sup>	$g_{FS}$	$V_{DS}=10V, I_D=0.2A$	100			mS
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=0.5A$	0.5		1.3	V
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		22.8		pF
Output Capacitance	$C_{oss}$			3.5		
Reverse Transfer Capacitance	$C_{rss}$			2.9		
<b>Switching Characteristics</b>						
Turn-On Delay Time <sup>(Note2)</sup>	$t_{d(on)}$	$V_{DD}=30V, V_{GEN}=10V, R_G=25\Omega, I_D=0.5A, R_L=60\Omega$		3.8		ns
Turn-Off Delay Time <sup>(Note2)</sup>	$t_{d(off)}$			19		

 Note: 2.Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

**Curve Characteristics**

Fig. 1 - Output Characteristics

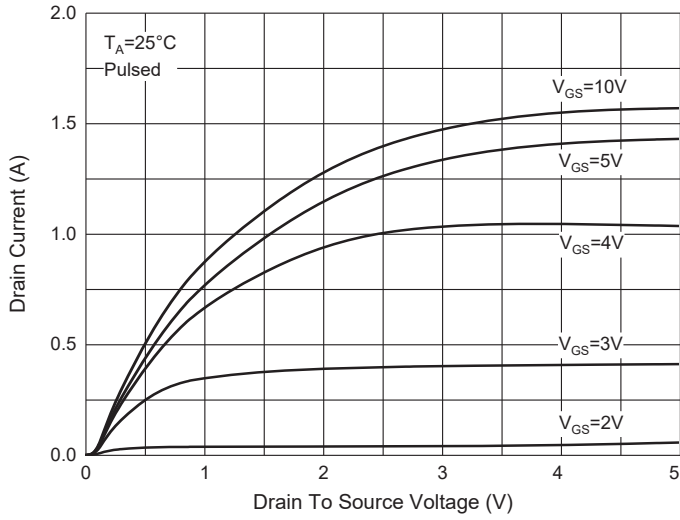


Fig. 2 - Transfer Characteristics

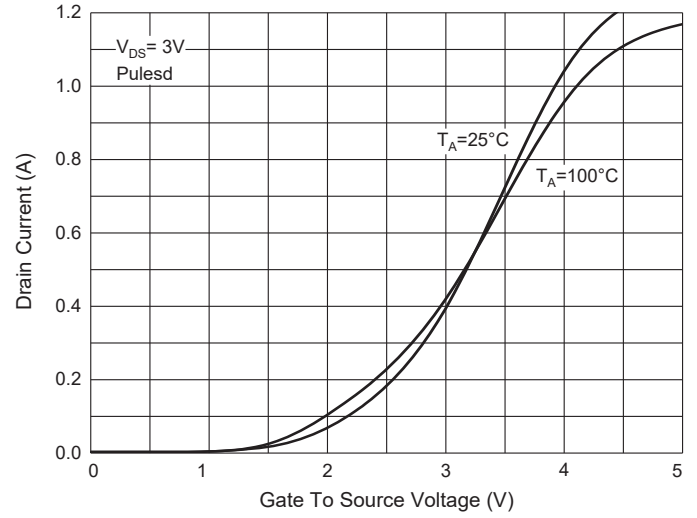


Fig. 3 -  $R_{DS(ON)} - I_D$

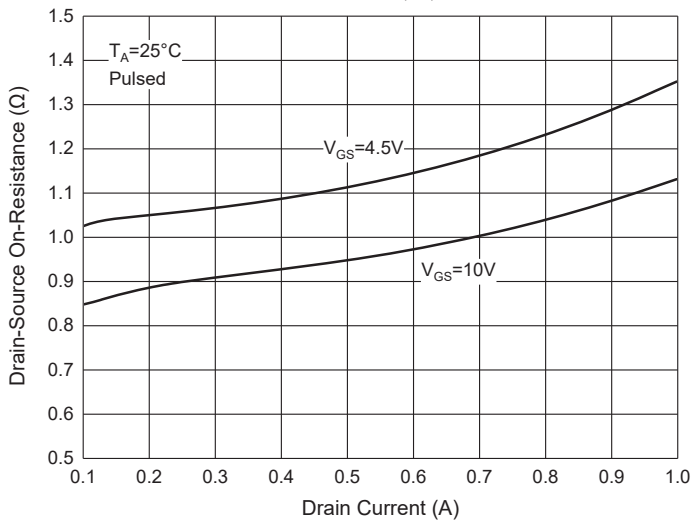


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

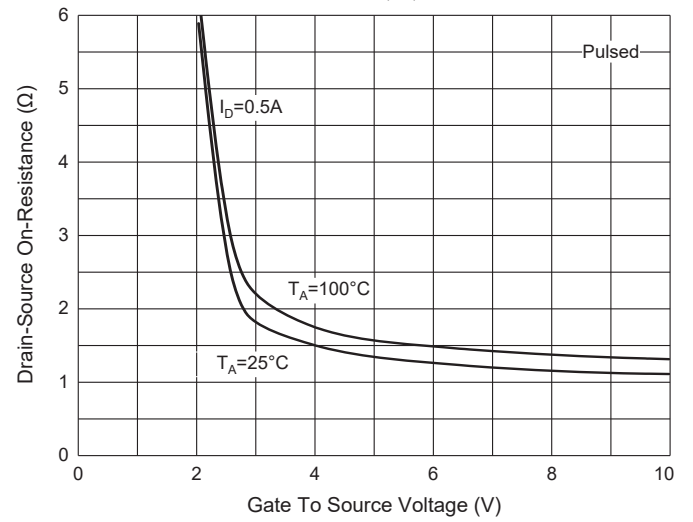


Fig. 5 -  $I_S - V_{SD}$

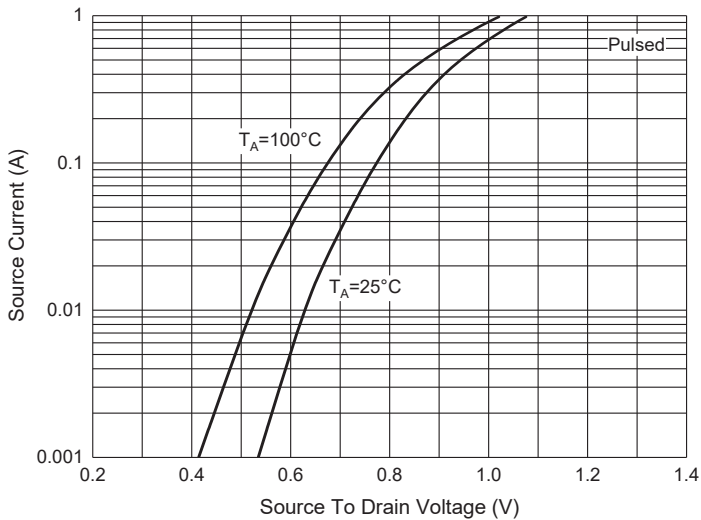
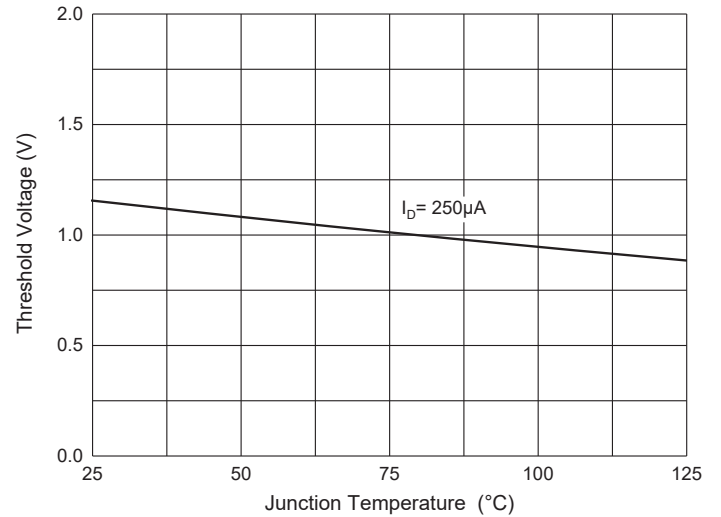


Fig. 6 - Threshold Voltage



## Ordering Information

Device	Packing
BSS138BKDW-TPQ2	Tape&Reel:3Kpcs/Reel

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