BSS138KDWH

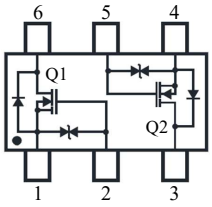
Dual N-Channel Enhancement Mode MOSFET

FEATURES

· Low gate threshold voltage

· ESD protected

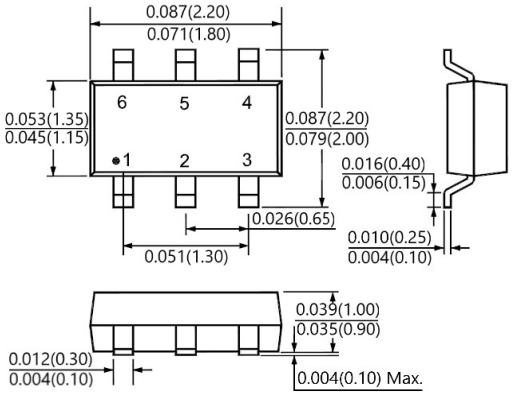
· Suffix "H" indicates Halogen-free parts, ex. BSS138KDWH



Top View

1.Source 2.Gate 3.Drain
4.Source 5.Gate 6.Drain

SOT-363



Dimensions in inch and (millimeter)

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	50	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	0.36	A
Peak Drain Current	(Note 1)	I_{DM}	1.2	A
Power Dissipation		P_D	236	mW
Thermal Resistance from Junction to Ambient	(Note 2)	$R_{\theta JA}$	530	℃/W
Operating and Storage Temperature Range		T_J ,T_{stg}	- 55 to + 150	℃

Note:

1. Pulse Test: Pulse Width≤100μs, Duty Cycle≤2%, limited by junction temperature TJ(MAX)
2. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

Electrical Characteristics(T_A=25℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	I_D=250μA	$V_{(BR)DSS}$	50	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=50V	I_{DSS}	-	-	1	μA
Gate Source Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±10	μA
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	0.8	-	1.5	V
Static Drain Source On-Resistance	V_{GS}=10V, I_D=0.5A V_{GS}=4.5V, I_D=0.2A V_{GS}=2.5V, I_D=0.1A	$R_{DS(on)}$	- - -	- - -	1.6 2.5 4.5	Ω
Dynamic						
Total Gate Charge	V_{DS}=25V, I_D=1A, V_{GS}=4.5V	Q_g	-	0.85	-	nC
	V_{DS}=25V, I_D=1A, V_{GS}=10V		-	1.30	-	
Gate-Source Charge		Q_{gs}	-	0.45	-	
Gate-Drain Charge		Q_{gd}	-	0.30	-	
Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1MHz	C_{iss}	-	33	-	pF
Output Capacitance		C_{oss}	-	10	-	
Reverse Transfer Capacitance		C_{rss}	-	8	-	
Turn-On Delay Time	V_{DS}=30V, V_{GS}=10V, I_D=0.5A, R_g=25Ω	$t_{d(on)}$	-	5.4	-	ns
Turn-On Rise Time		t_r	-	3.0	-	
Turn-Off Delay Time		$t_{d(off)}$	-	6.0	-	
Turn-Off Fall Time		t_f	-	30.0	-	
Drain-Source Body Diode						
Drain-Source Diode Forward Voltage	V_{GS}=0V, I_S=0.5A	V_{SD}	-	-	1.5	V
Continuous Source Current	-	I_S	-	-	0.36	A

RATINGS AND CHARACTERISTIC CURVES

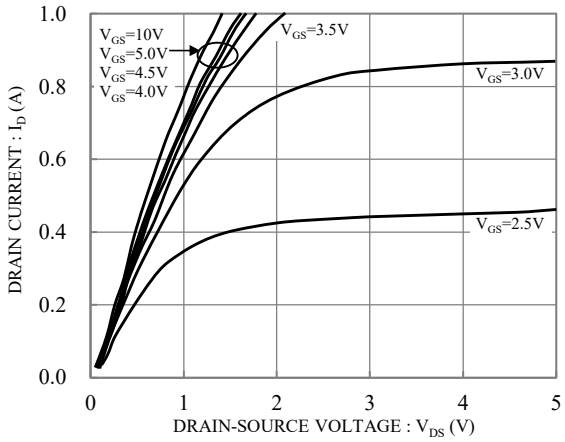


Fig.1 Typical Output Characteristics

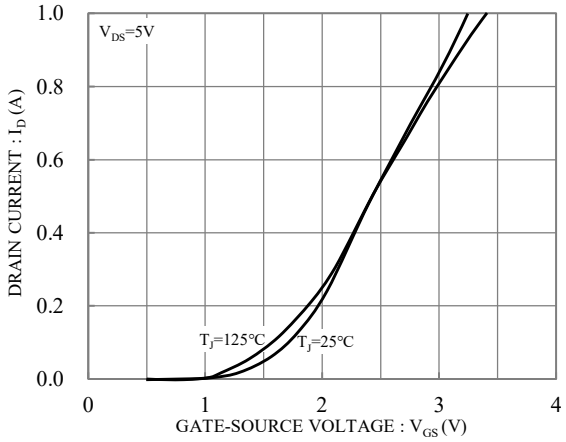


Fig.2 Typical Transfer Characteristics

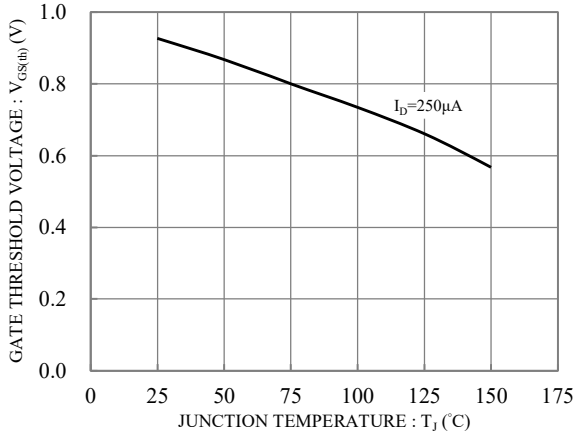


Fig.3 Gate Threshold Voltage vs. Junction Temperature

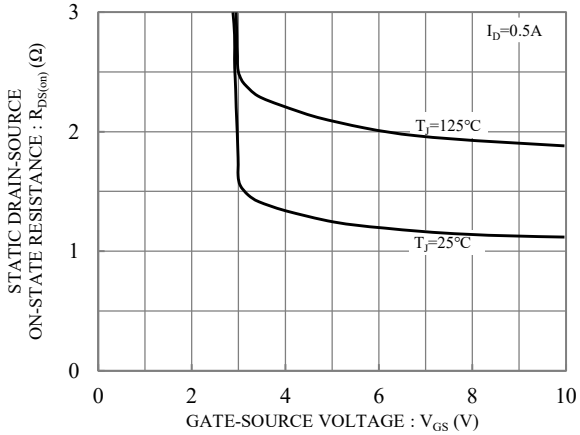


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

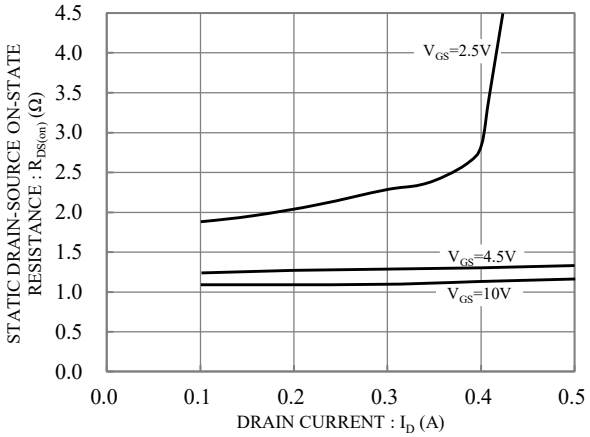


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

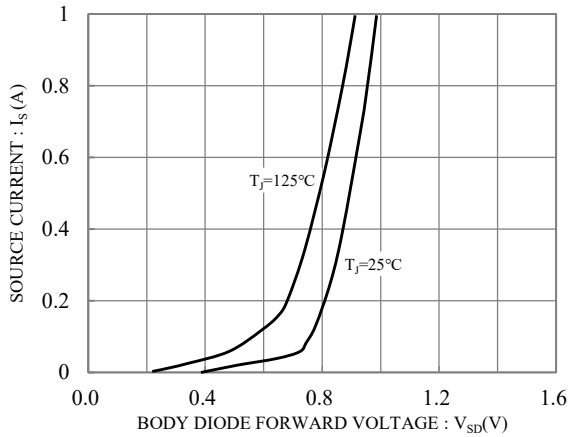


Fig.6 Body Diode Forward Voltage vs. Source Current

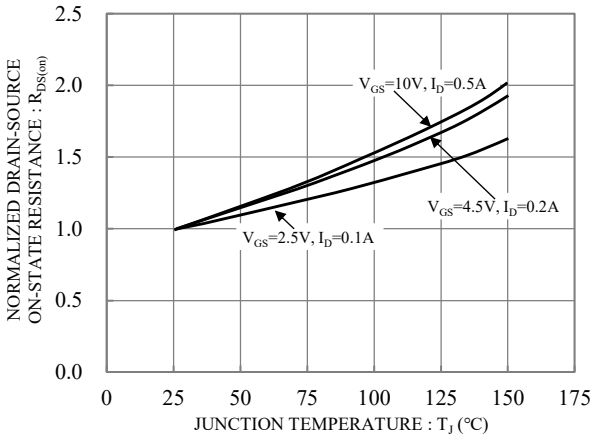


Fig.7 Drain-Source On-State Resistance vs. Junction Temperature

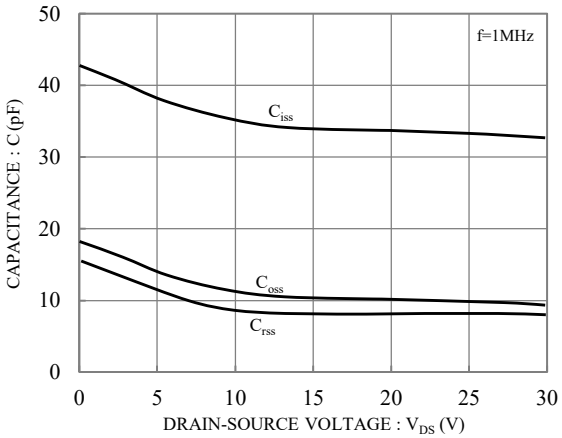


Fig.8 Capacitance vs. Drain-Source Voltage

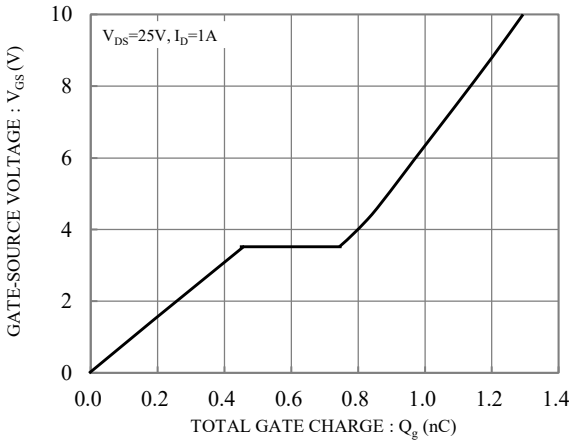
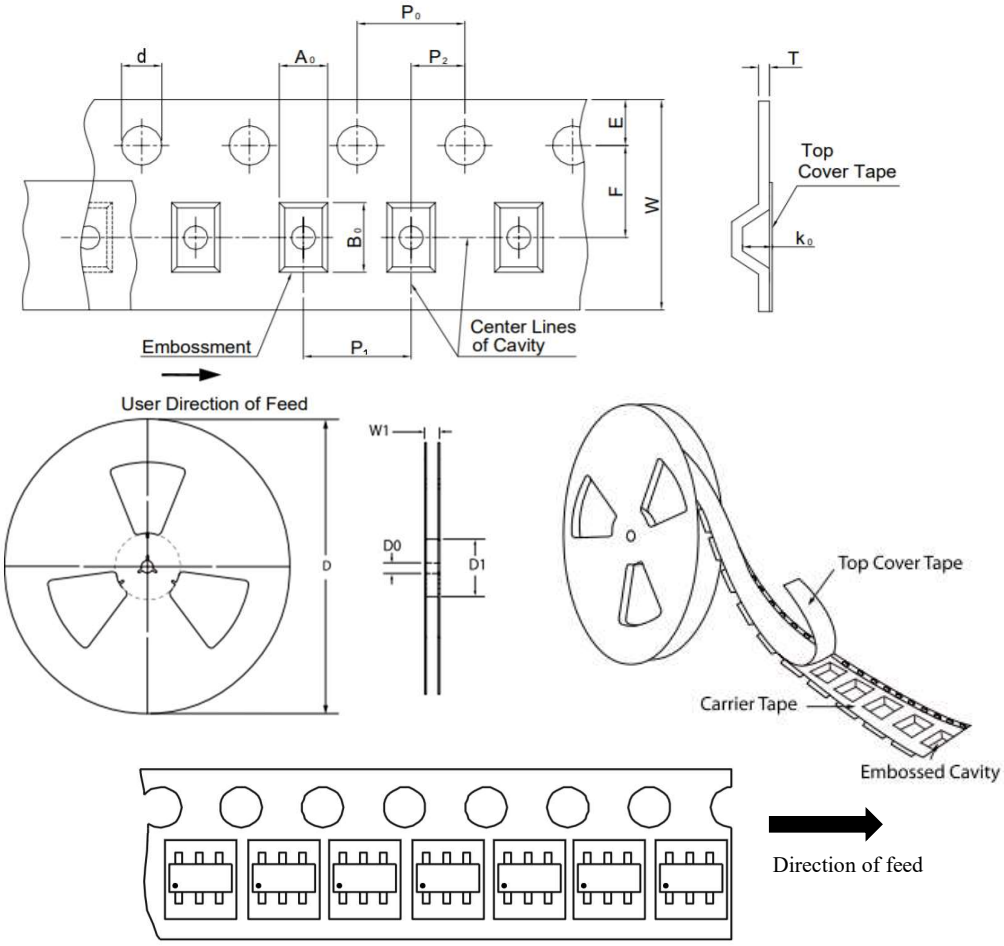


Fig.9 Gate Charge Characteristics

TAPE & REEL SPECIFICATION



Item	Symbol	SOT-363
Carrier width	A_0	2.30 ± 0.10
Carrier length	B_0	2.30 ± 0.10
Carrier depth	K_0	1.20 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D_0	13.00 ± 0.50
Reel inner diameter	D_1	MIN. 50.00
Sprocke hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocke hole pitch	P_0	4.00 ± 0.10
Punch hole pitch	P_1	4.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	0.60 ± 0.10
Tape width	W	8.00 ± 0.30
Reel width	W1	MAX. 10.00

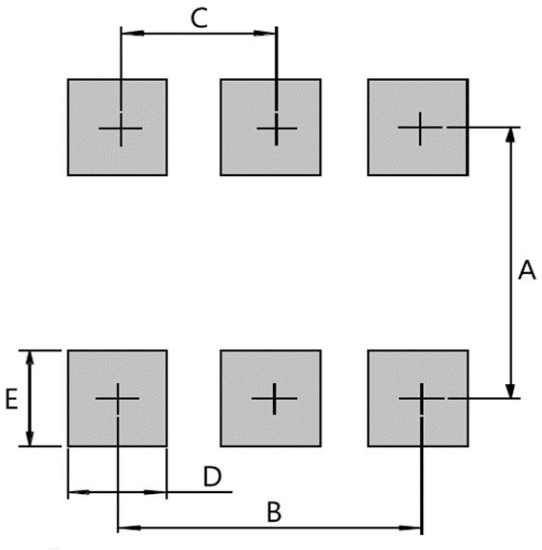
ORDER INFORMATION

Package	Reel Size	Quantity
SOT-563	7"	3,000

MARKING CODE

Part Number	Marking Code
BSS138KDWH	NL

SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D	E
SOT-363	1.90	1.30	0.65	0.42	0.60