

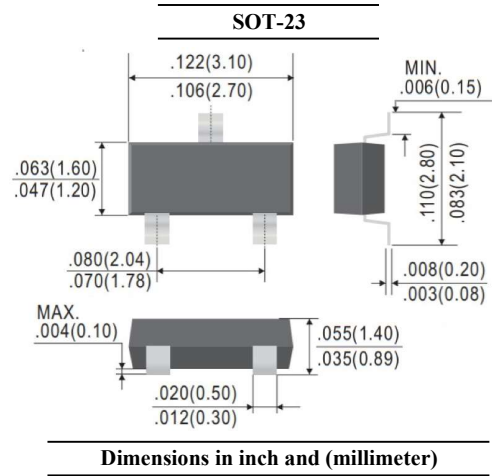
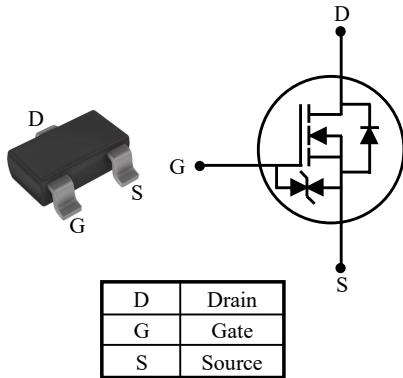


ABSS138KH

N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- ESD Protected
- High speed switch
- AEC-Q101 Qualified
- Suffix "H" indicates Halogen-free parts, ex. ABSS138KH



Maximum Ratings ($T_A=25\text{ }^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current (Note 1)	I_D	$V_{GS}=10\text{V}, T_A=25^\circ\text{C}$	360
		$V_{GS}=10\text{V}, T_A=100^\circ\text{C}$	230
Pulsed Drain Current ($t_p < 10\mu\text{s}$)	I_{DM}	1.2	A
Power Dissipation	P_D	(Note 2)	350
		(Note 1)	420
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	(Note 2)	370
		(Note 1)	300
Operating and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for drain 1 cm^2 .
2. Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.



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Electrical Characteristics ($T_A=25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	$I_D=250\mu\text{A}$	V_{DSS}	60	-	-	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu\text{A}$	$V_{GS(th)}$	0.48	-	1.60	V
Zero Gate Voltage Drain Current	$V_{DS}=60\text{V}$	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 10\text{V}$	I_{GSS}	-	-	± 1	μA
	$V_{GS}=\pm 20\text{V}$		-	-	± 10	
Drain-Source On-State Resistance	$V_{GS}=10\text{V}, I_D=350\text{mA}$	$R_{DS(on)}$	-	-	1.6	Ω
	$V_{GS}=4.5\text{V}, I_D=200\text{mA}$		-	-	2.2	
	$V_{GS}=2.5\text{V}, I_D=10\text{mA}$		-	-	6.5	
Dynamic						
Forward Transfer Admittance	$V_{DS}=5\text{V}, I_D=400\text{mA}$	g_{FS}	-	755	-	mS
Gate resistance	$V_{DS}=0\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	R_g	-	38	-	Ω
Total Gate Charge	$V_{DS}=25\text{V}, I_D=1\text{A}, V_{GS}=4.5\text{V}$	Q_g	-	0.85	-	nC
			-	1.30	-	
Gate-Source Charge	$V_{DS}=25\text{V}, I_D=1\text{A}, V_{GS}=10\text{V}$	Q_{gs}	-	0.45	-	
Gate-Drain Charge		Q_{gd}	-	0.30	-	
Input Capacitance	$V_{DS}=10\text{V}, f=1\text{MHz}$	C_{iss}	-	51.3	-	pF
Output Capacitance		C_{oss}	-	11.6	-	
Reverse Transfer Capacitance		C_{rss}	-	8.2	-	
Turn-On Delay Time	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A}, R_g=51\Omega$	$t_{d(on)}$	-	13.4	-	ns
Turn-On Rise Time		t_r	-	13.3	-	
Turn-Off Delay Time		$t_{d(off)}$	-	7.8	-	
Turn-Off Fall Time		t_f	-	4.6	-	
Drain-Source Body Diode						
Drain-Source Diode Forward Voltage	$I_S=0.3\text{A}$	V_{SD}	0.47	-	1.20	V
Reverse Recovery Time	$I_S=1\text{A}, di/dt=100\text{A}/\mu\text{s}$	t_{rr}	-	9.2	-	ns
Reverse Recovery Charge		Q_{rr}	-	3.7	-	nC



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RATINGS AND CHARACTERISTIC CURVES

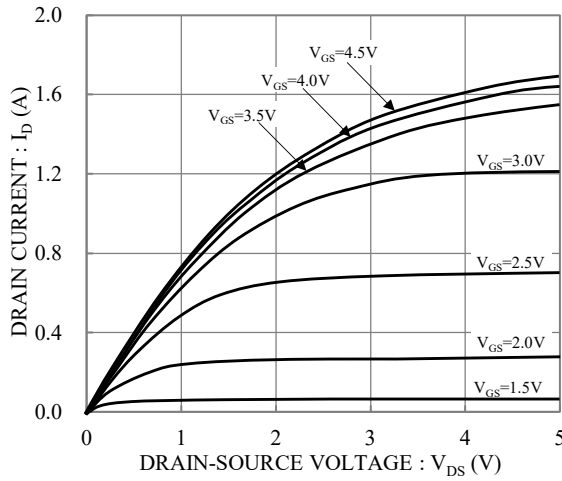


Fig.1 Typical Output Characteristics

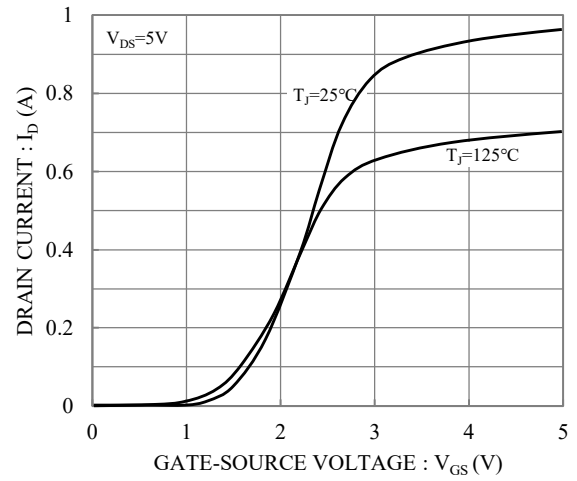


Fig.2 Typical Transfer Characteristics

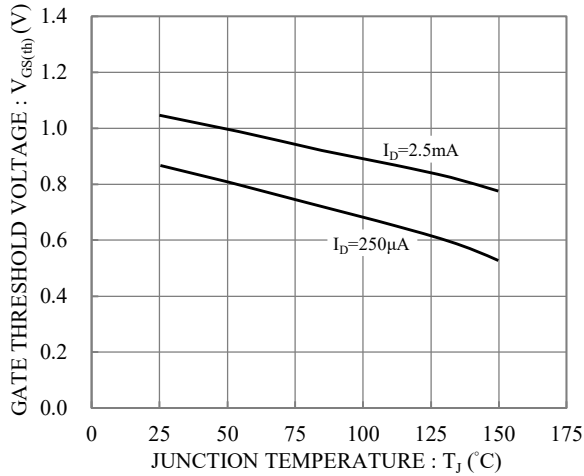


Fig.3 Gate Threshold Voltage vs. Junction Temperature

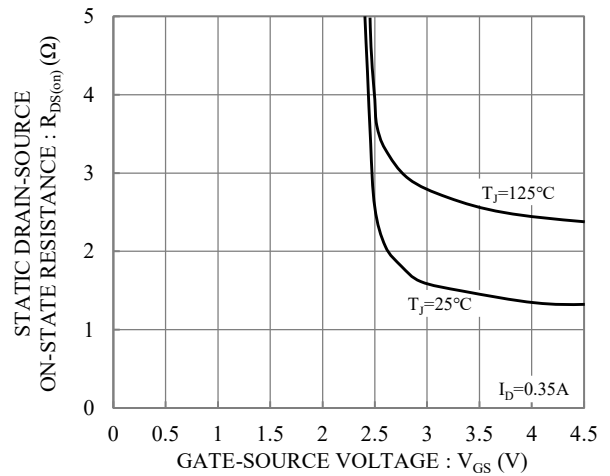


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

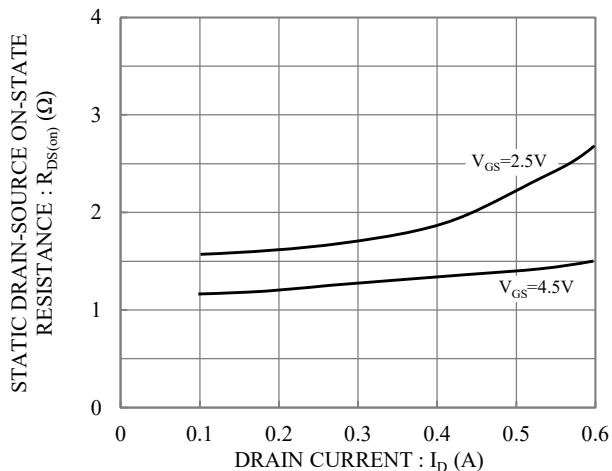


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

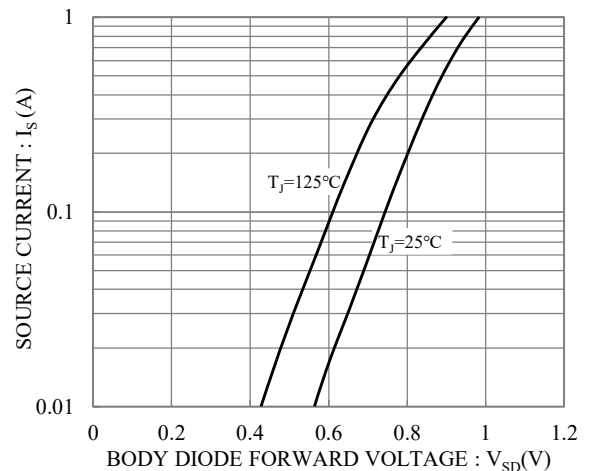


Fig.6 Body Diode Forward Voltage vs. Source Current



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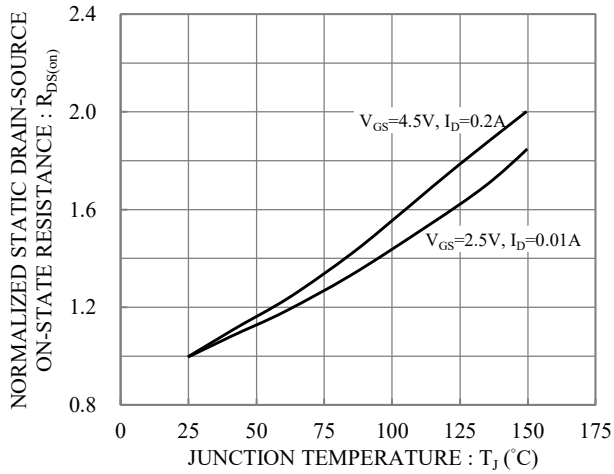


Fig.7 Drain-Source On-State Resistance vs Junction Temperature

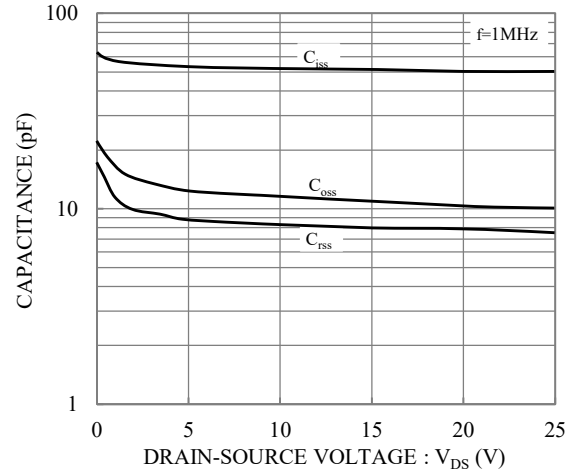


Fig.8 Capacitance vs Drain-Source Voltage

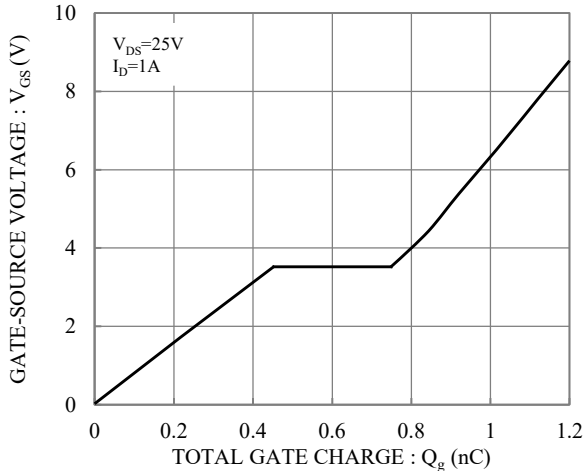


Fig.9 Gate Charge

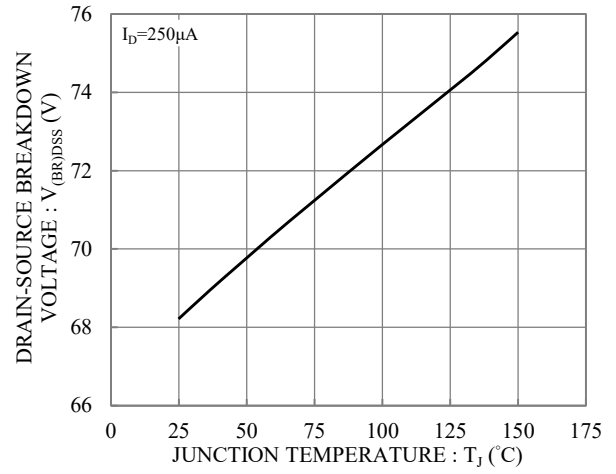


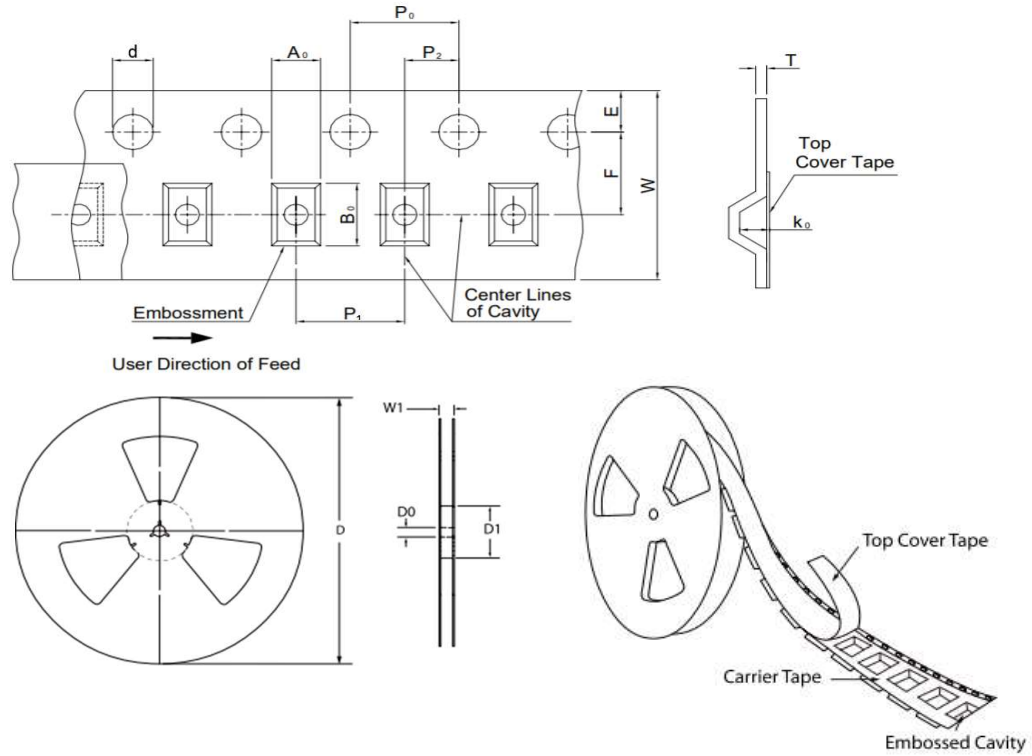
Fig.10 Breakdown Voltage vs Junction Temperature



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23
Carrier width	A ₀	3.30 ± 0.10
Carrier length	B ₀	3.00 ± 0.10
Carrier depth	K ₀	1.70 ± 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
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket 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	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W ₁	MAX. 14.50

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-23	7"	3,000

MARKING CODE

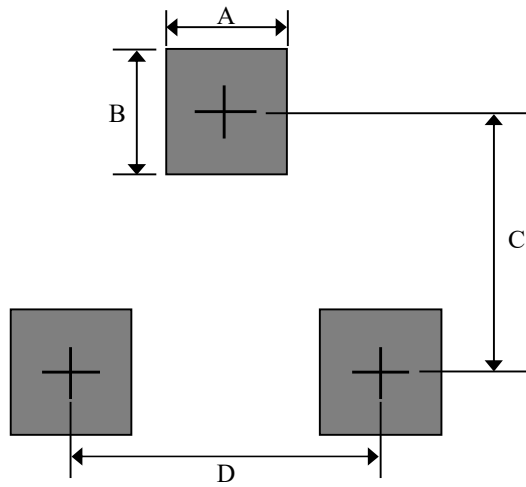
Part Number	Marking Code
ABSS138KH	VD



ABSS138KH

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SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D
SOT-23	0.80	1.00	2.40	1.90