

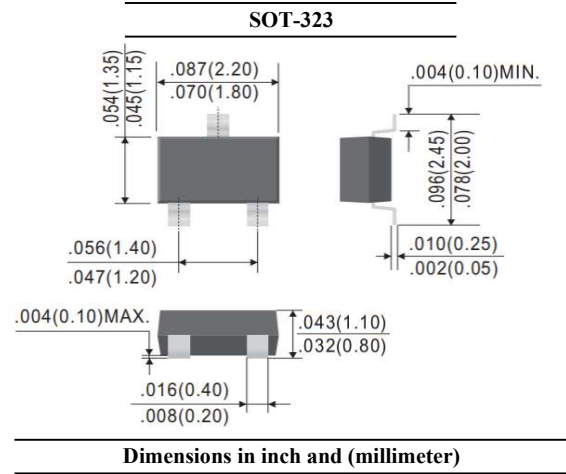
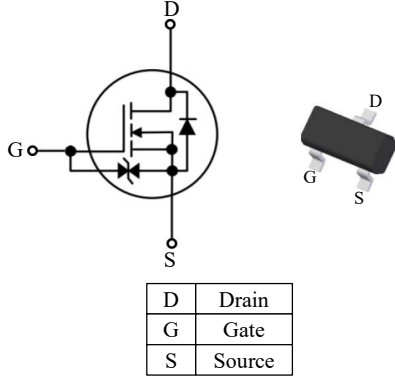


SM1308KWH

N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- Low on-resistance
- Fast switching speed
- Drive circuits can be simple
- Suffix "H" indicates Halogen-free parts, ex. SM1308KWH



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 12	V
Drain Current	I_D	1.4	A
Peak Drain Current, Pulsed (Note 1)	I_{DM}	6	A
Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient (Note 2)	$R_{\theta JA}$	312	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Pulse Width $\leq 100\mu\text{s}$, Duty Cycle $\leq 2\%$, Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$.
2. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	$I_D = 250\mu\text{A}$	BV_{DSS}	30	-	-	V
Zero Gate Voltage Drain Current	$V_{DS} = 30\text{V}$	I_{DSS}	-	-	1	μA
Gate Source Leakage Current	$V_{GS} = \pm 12\text{V}$	I_{GSS}	-	-	± 20	μA
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	0.6	-	1.5	V
Static Drain Source On-Resistance	$V_{GS} = 10\text{V}, I_D = 1.4\text{A}$	$R_{DS(on)}$	-	-	132	m Ω
	$V_{GS} = 4.5\text{V}, I_D = 1\text{A}$		-	-	144	
	$V_{GS} = 2.5\text{V}, I_D = 0.5\text{A}$		-	-	185	
Forward Transfer Admittance	$V_{DS} = 10\text{V}, I_D = 1.4\text{A}$	g_{fs}	-	5	-	S
Dynamic						
Total Gate Charge	$V_{DS} = 15\text{V}, I_D = 1.4\text{A}, V_{GS} = 4.5\text{V}$	Q_g	-	4.0	-	nC
			-	8.0	-	
			-	0.9	-	
Gate-Source Charge	$V_{DS} = 15\text{V}, I_D = 1.4\text{A}, V_{GS} = 10\text{V}$	Q_{gs}	-	0.9	-	pF
Gate-Drain Charge		Q_{gd}	-	1.1	-	
Input Capacitance		$V_{GS} = 0\text{V}, V_{DS} = 15\text{V}, f = 1\text{MHz}$	C_{iss}	-	300	
Output Capacitance	C_{oss}		-	45	-	
Reverse Transfer Capacitance	C_{rss}		-	34	-	
Turn-On Delay Time	$V_{GS} = 10\text{V}, V_{DS} = 15\text{V}, I_D = 1.4\text{A}, R_G = 1\Omega$	$t_{d(on)}$	-	113	-	ns
Rise Time		t_r	-	13	-	
Turn-Off Delay Time		$t_{d(off)}$	-	107	-	
Fall time		t_f	-	17	-	
Drain-Source Body Diode						
Diode Forward Voltage	$I_S = 1.1\text{A}$	V_{SD}	-	-	1.2	V



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RATINGS AND CHARACTERISTIC CURVES

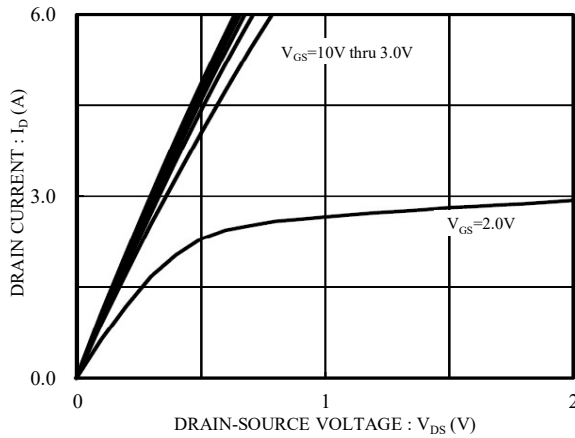


Fig.1 Typical Output Characteristics

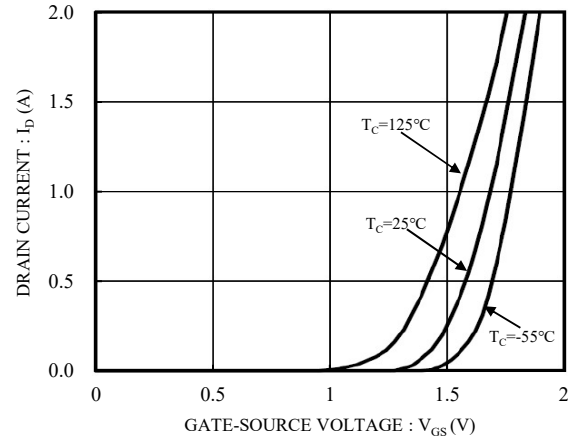


Fig.2 Typical Transfer Characteristics

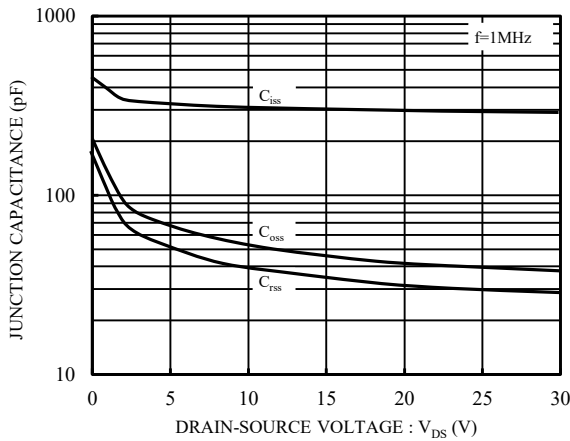


Fig.3 Typical Junction Capacitance

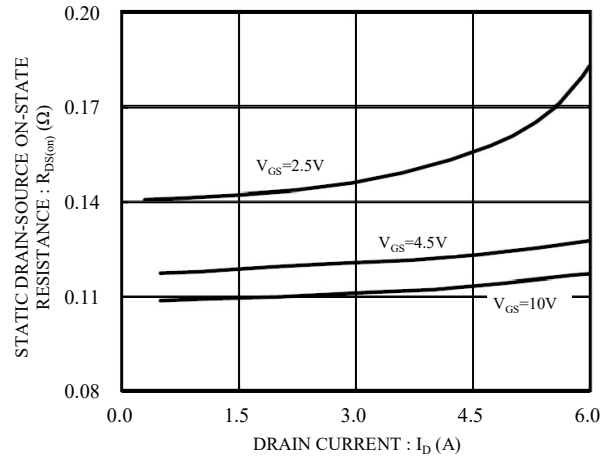


Fig.4 Static Drain-Source On-state Resistance vs. Drain Current

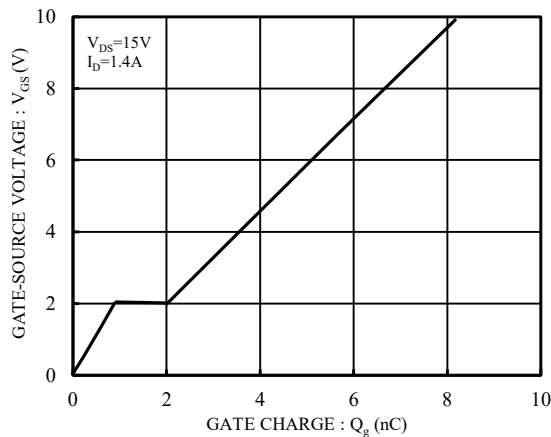


Fig.5 Gate Charge Characteristics

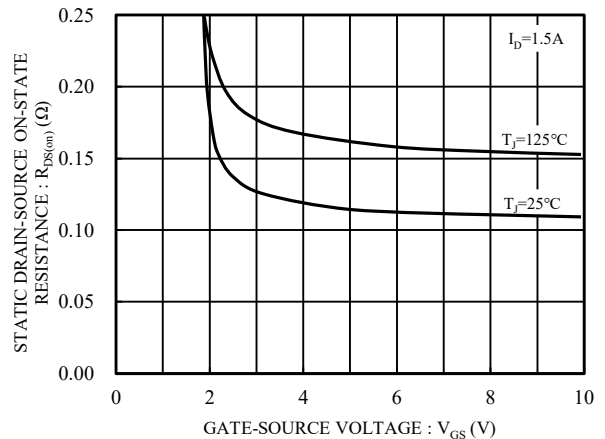


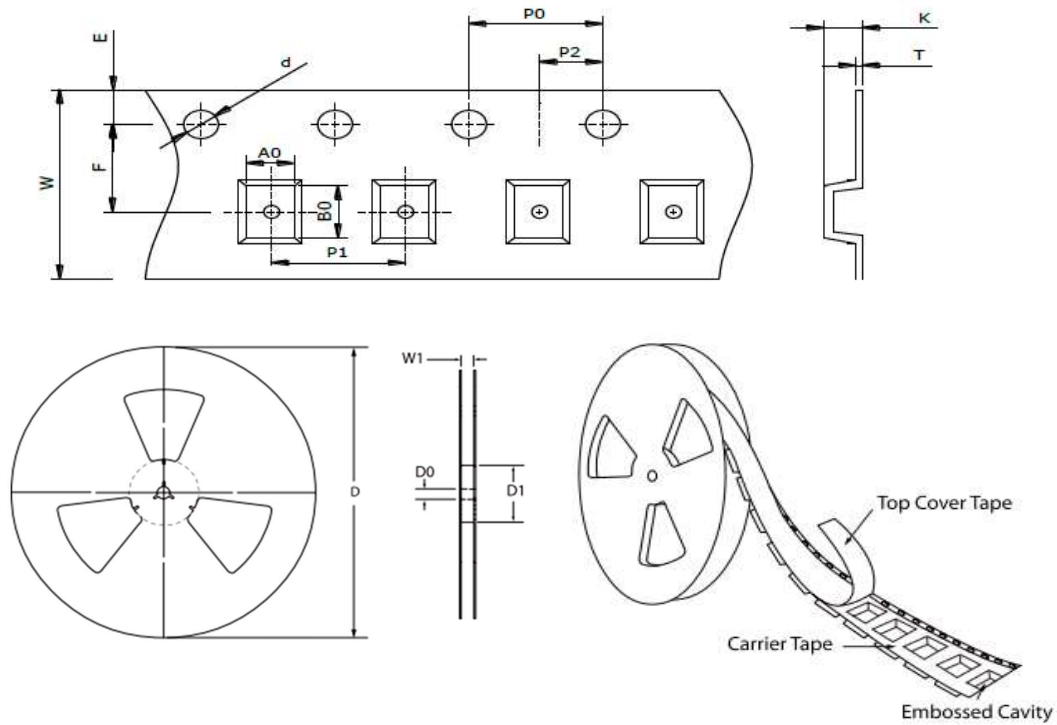
Fig.6 Static Drain-Source On-state Resistance vs. Gate-Source Voltage



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-323
Carrier width	A ₀	2.30 ± 0.10
Carrier length	B ₀	2.55 ± 0.10
Carrier depth	K	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
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	W1	MAX. 14.50

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-323	7"	3,000

MARKING CODE

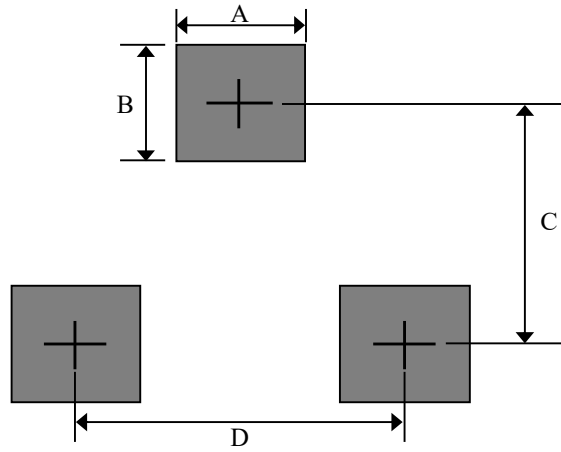
Part Number	Marking Code
SM1308KWH	MZ



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SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D
SOT-323	0.80	0.80	1.60	1.30