

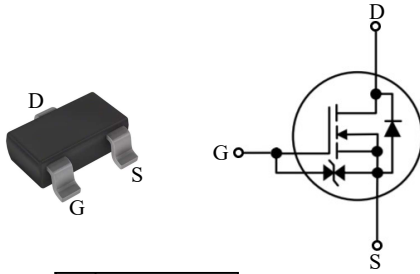


SM3008KDSH

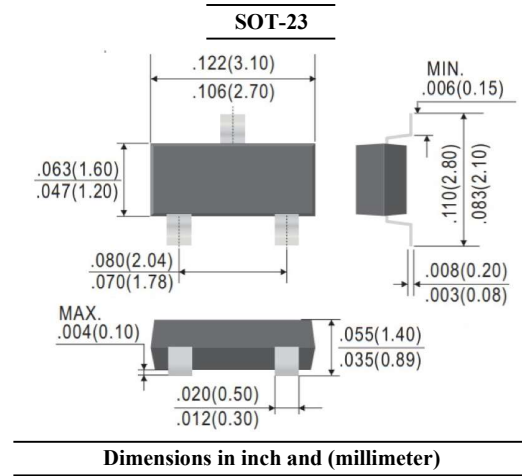
N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- ESD protected up to 1KV
- Suffix "H" indicates Halogen-free parts, ex. SM3008KDSH



Pin	Description
G	Gate
S	Source
D	Drain



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	400	mA
Pulsed Drain Current	I_{DM}	1.6	A
Power Dissipation	P_D	(Note 1)	350
		(Note 2)	420
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	(Note 1)	370
		(Note 2)	300
Operating and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.
1. Device mounted on FR-4 substrate PC board, with 1-inch square copper plate.



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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	$I_D = 250\mu\text{A}$	V_{DSS}	30	-	-	V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	0.6	-	1.1	V
Zero Gate Voltage Drain Current	$V_{DS} = 30\text{V}$	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	$V_{GS} = \pm 8\text{V}$	I_{GSS}	-	-	± 1	μA
Drain-Source On-State Resistance	$V_{GS} = 4.5\text{V}, I_D = 350\text{mA}$	$R_{DS(on)}$	-	-	1.4	Ω
	$V_{GS} = 2.5\text{V}, I_D = 200\text{mA}$		-	-	2.1	
	$V_{GS} = 1.8\text{V}, I_D = 10\text{mA}$		-	-	2.8	
Forward Transconductance	$V_{DS} = 10\text{V}, I_D = 350\text{mA}$	g_{FS}	-	650	-	mS
Dynamic						
Total Gate Charge	$V_{GS} = 4.5\text{V}, V_{DS} = 25\text{V}, I_D = 1\text{A}$	Q_g	-	0.85	-	nC
			-	1.30	-	
Gate-Source Charge	$V_{GS} = 10\text{V}, V_{DS} = 25\text{V}, I_D = 1\text{A}$	Q_{gs}	-	0.45	-	nC
Gate-Drain Charge		Q_{gd}	-	0.30	-	
Input Capacitance	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	C_{iss}	-	33	-	pF
Output Capacitance		C_{oss}	-	10	-	
Reverse Transfer Capacitance		C_{rss}	-	8	-	
Turn-On Delay Time	$V_{DS} = 30\text{V}, V_{GS} = 10\text{V}, I_D = 0.5\text{A}, R_g = 25\Omega$	$t_{d(on)}$	-	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	$I_S = 350\text{mA}, V_{GS} = 0\text{V}$	V_{SD}	0.47	-	1.20	V



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RATINGS AND CHARACTERISTIC CURVES

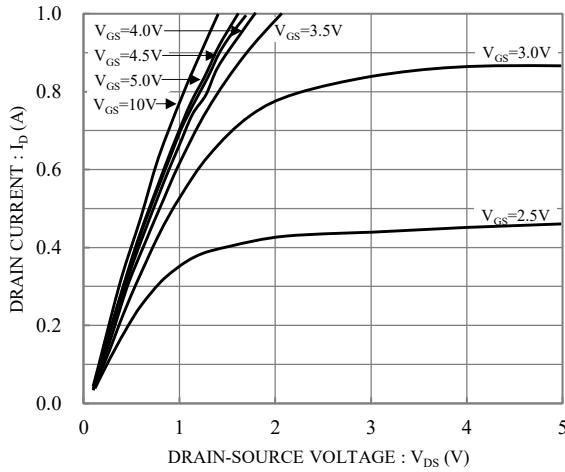


Fig.1 Typical Output Characteristics

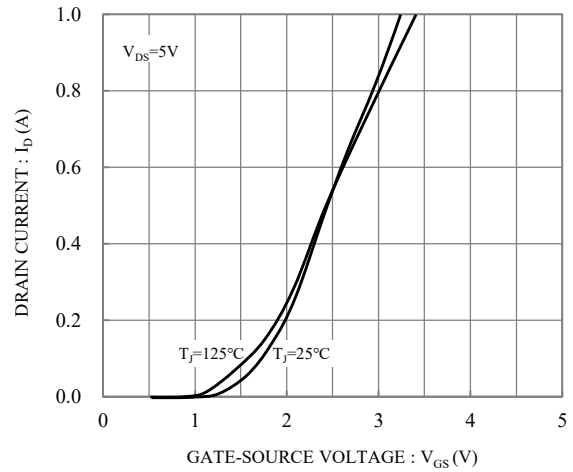


Fig.2 Typical Transfer Characteristics

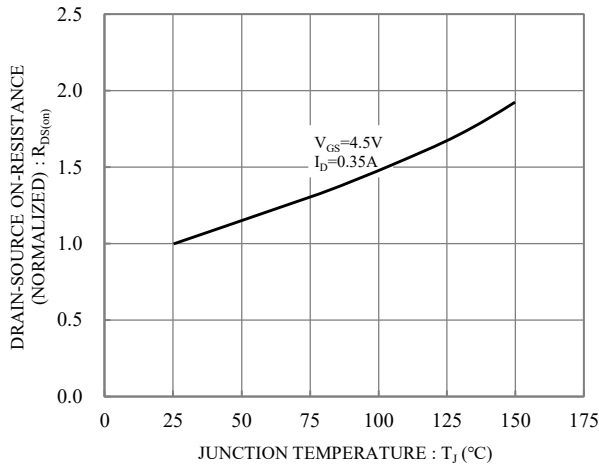


Fig.3 On-Resistance vs. Junction Temperature

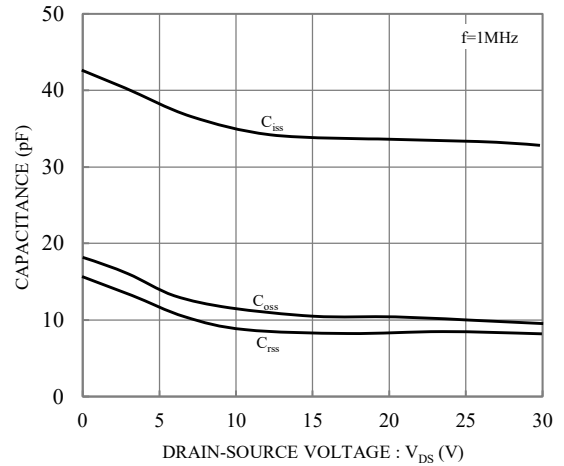


Fig.4 Capacitance vs. Drain-Source Voltage

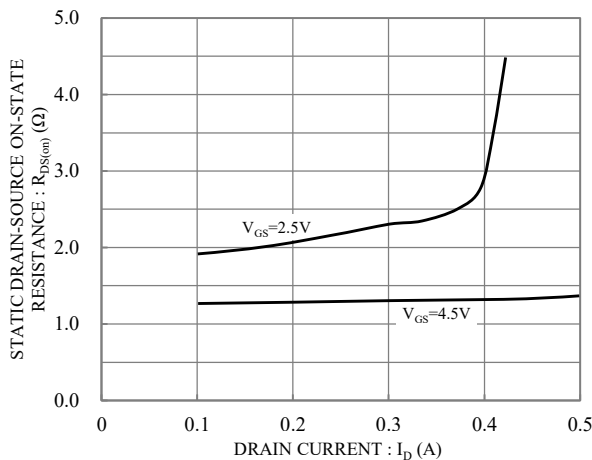


Fig.5 Static Drain-Source On-State Resistance vs. Drain current

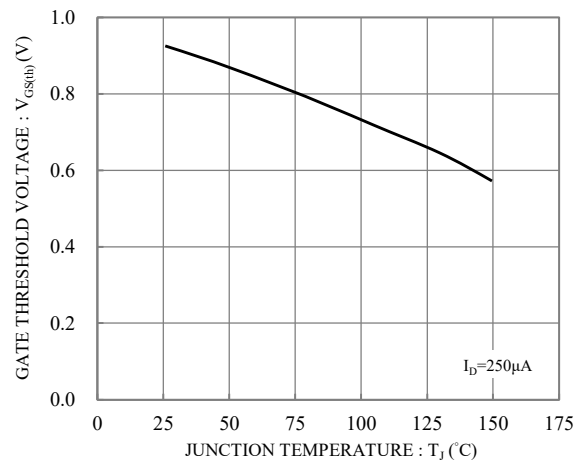


Fig.6 Gate Threshold Voltage vs. Junction Temperature



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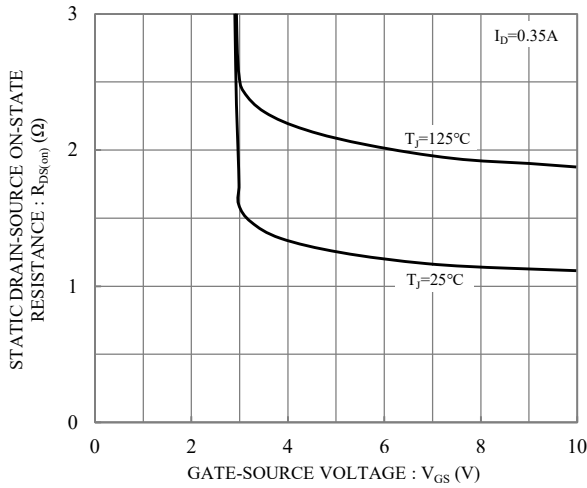


Fig.7 Static Drain-Source On-State Resistance vs Gate-Source Voltage

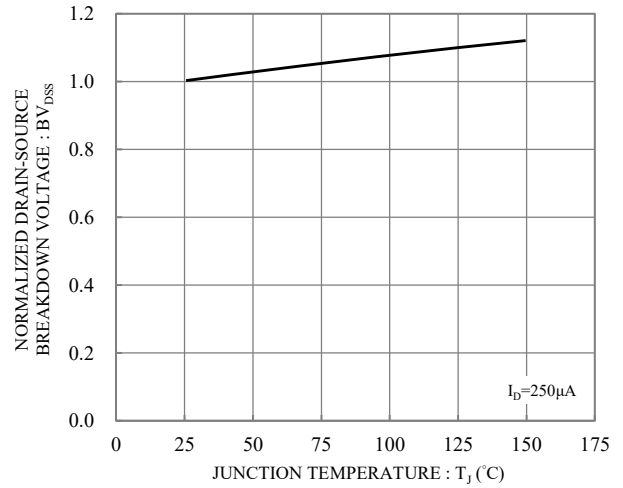


Fig.8 Breakdown Voltage vs Junction Temperature

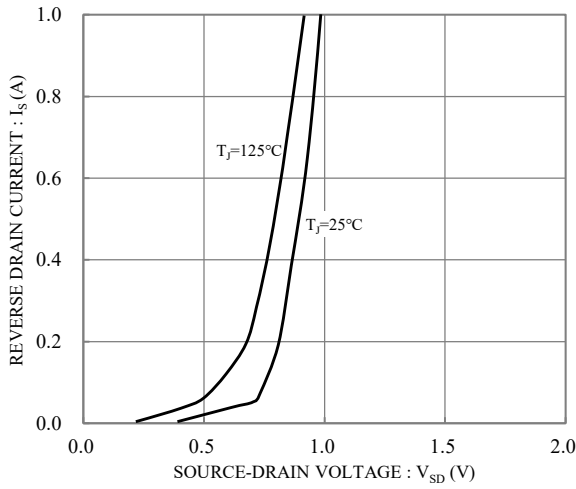


Fig.9 Typical Forward Characteristic

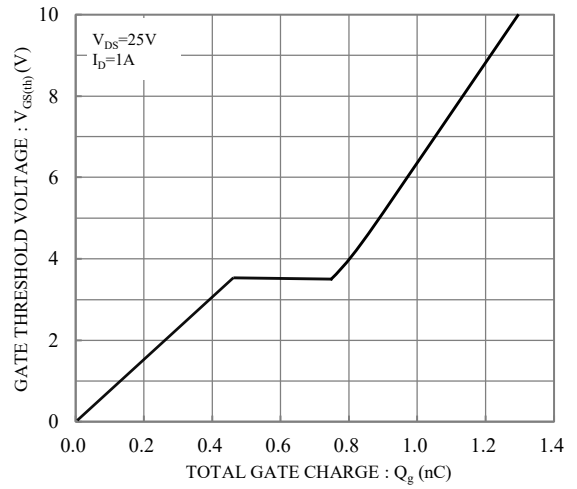


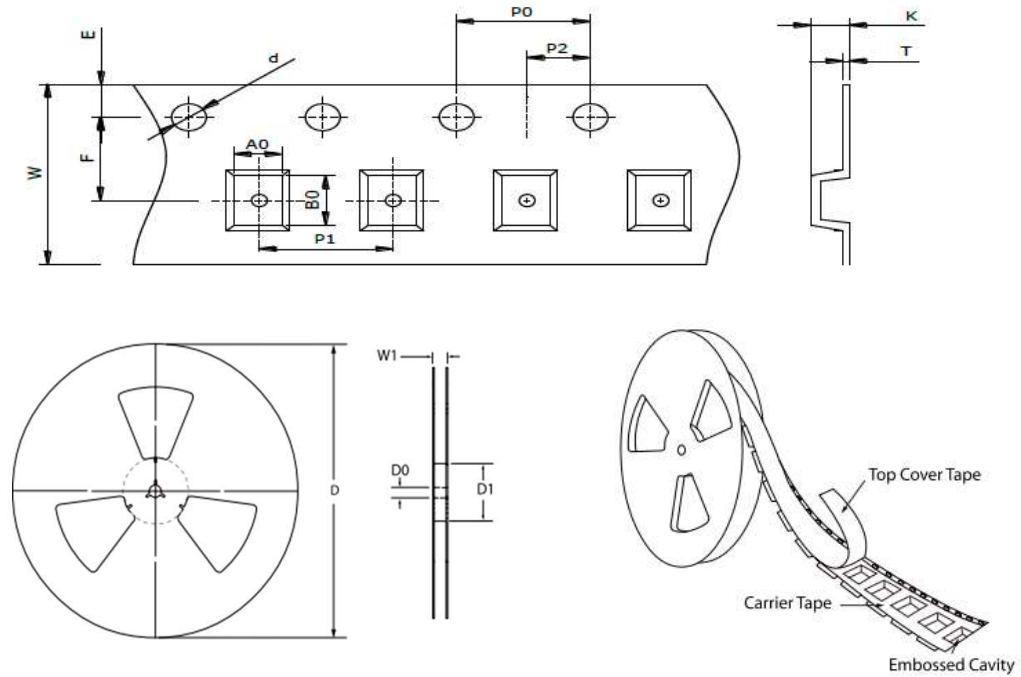
Fig.10 Gate Charge



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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	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	W1	MAX. 14.50

ORDER INFORMATION

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

MARKING CODE

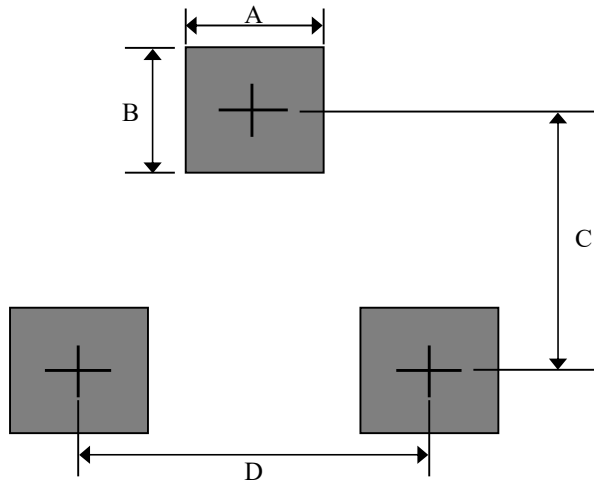
Part Number	Marking Code
SM3008KDSH	LC



SM3008KDSH

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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