

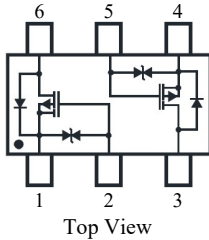


SM06L6KDTH

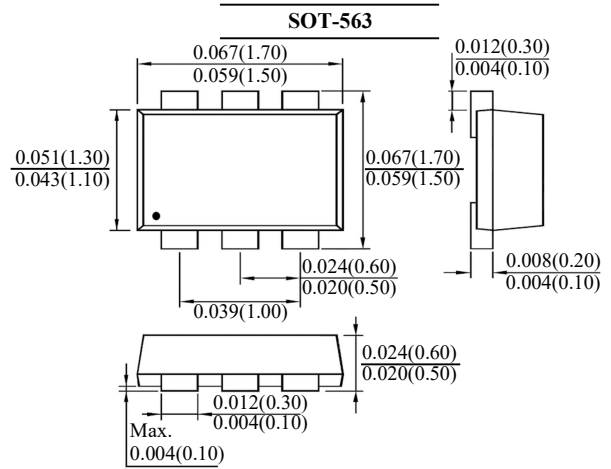
Dual P-Channel Enhancement Mode Field Effect Transistor

FEATURES

- Low on resistance $R_{DS(ON)}$
- Low gate threshold voltage
- ESD protected up to 2KV
- Suffix "H" indicates Halogen-free parts, ex. SM06L6KDTH



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



Dimensions in inch and (millimeter)

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-0.25	A
Peak Drain Current (Note 1)	I_{DM}	-1	A
Power Dissipation (Note 2)	P_D	350	mW
Thermal Resistance from Junction to Ambient (Note 2)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note:

1. Pulse Test: 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	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	$I_D = -250\mu\text{A}$	$V_{(BR)DSS}$	-60	-	-	V
Zero Gate Voltage Drain Current	$V_{DS} = -48\text{V}$	I_{DSS}	-	-	-1	μA
Gate Source Leakage Current	$V_{GS} = \pm 16\text{V}$	I_{GSS}	-	-	± 10	μA
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	$V_{GS(th)}$	-0.8	-	-2.0	V
Static Drain Source On-Resistance	$V_{GS} = -10\text{V}, I_D = -0.2\text{A}$	$R_{DS(on)}$	-	-	5	Ω
	$V_{GS} = -4.5\text{V}, I_D = -0.1\text{A}$		-	-	6	
	$V_{GS} = -2.5\text{V}, I_D = -0.1\text{A}$		-	-	8	
Dynamic						
Forward Transconductance	$V_{DS} = -25\text{V}, I_D = -0.1\text{A}$	g_{FS}	-	289	-	mS
Total Gate Charge	$V_{DS} = -25\text{V}, I_D = -0.1\text{A}, V_{GS} = -4.5\text{V}$	Q_g	-	1.1	-	nC
Gate-Source Charge		Q_{gs}	-	0.3	-	
Gate-Drain Charge		Q_{gd}	-	0.2	-	
Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = -30\text{V}, f = 1\text{MHz}$	C_{iss}	-	38	-	pF
Output Capacitance		C_{oss}	-	9	-	
Reverse Transfer Capacitance		C_{rss}	-	6	-	
Turn-On Delay Time	$V_{DD} = -25\text{V}, V_{GS} = -10\text{V}, I_D = -0.1\text{A}, R_g$	$t_{d(on)}$	-	14	-	ns
Turn-On Rise Time		t_r	-	4	-	
Turn-Off Delay Time		$t_{d(off)}$	-	15	-	
Turn-Off Fall Time		t_f	-	77	-	
Drain-Source Body Diode						
Drain-Source Diode Forward Voltage	$I_S = -0.2\text{A}$	V_{SD}	-	-	-1.2	V
Continuous Source Current	-	I_S	-	-	-0.25	A



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RATINGS AND CHARACTERISTIC CURVES

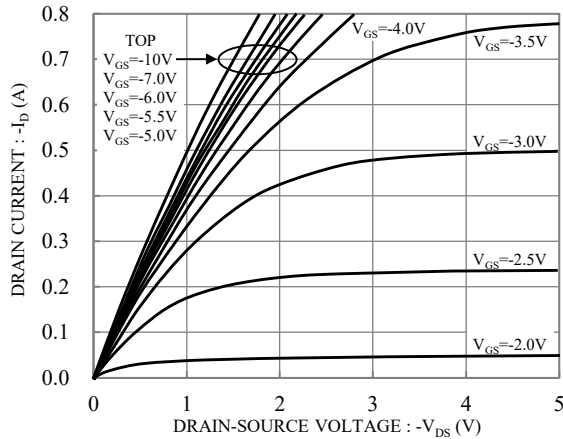


Fig.1 Typical Output Characteristics

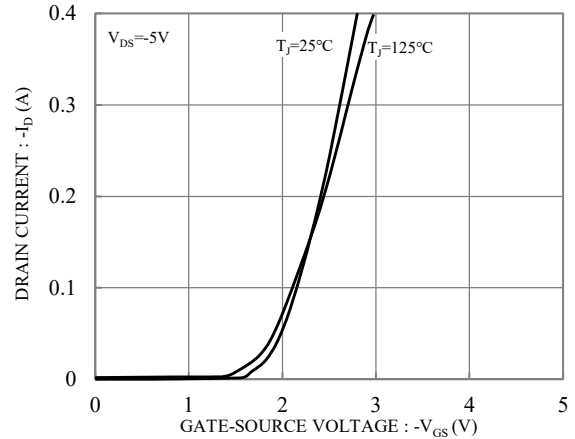


Fig.2 Typical Transfer Characteristics

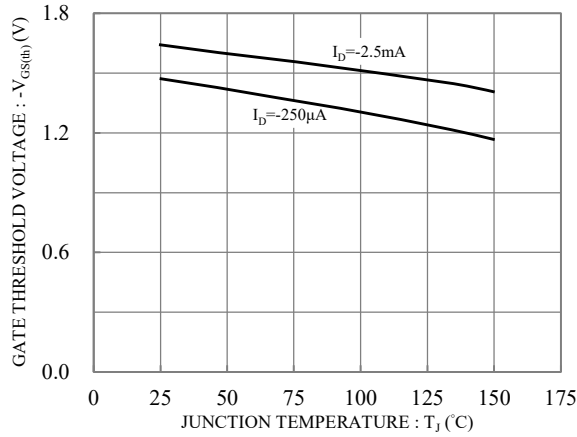


Fig.3 Gate Threshold Voltage vs. Junction Temperature

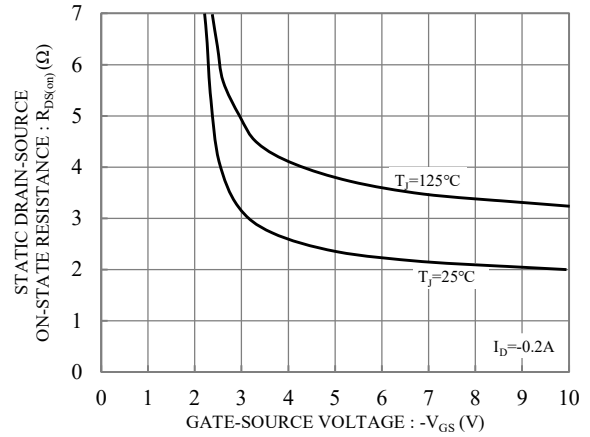


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

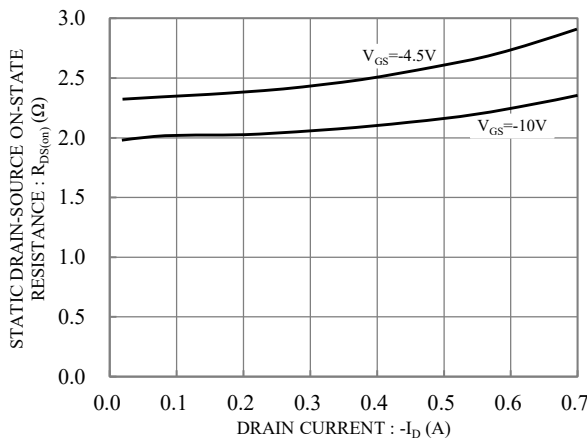


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

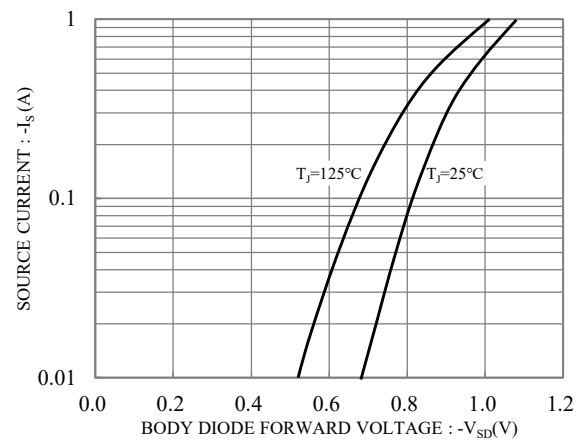


Fig.6 Body Diode Forward Voltage vs. Source Current



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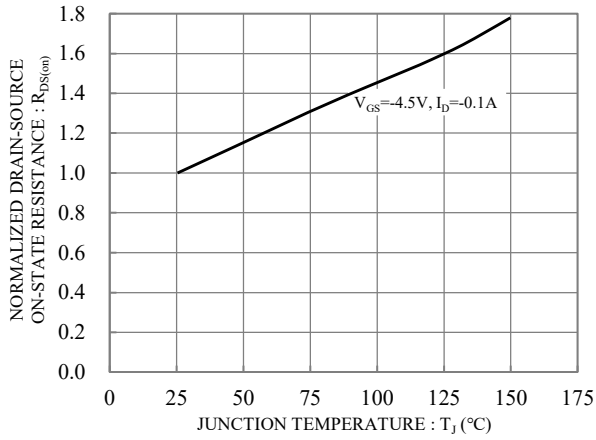


Fig.7 Drain-Source On-State Resistance vs. Junction Temperature

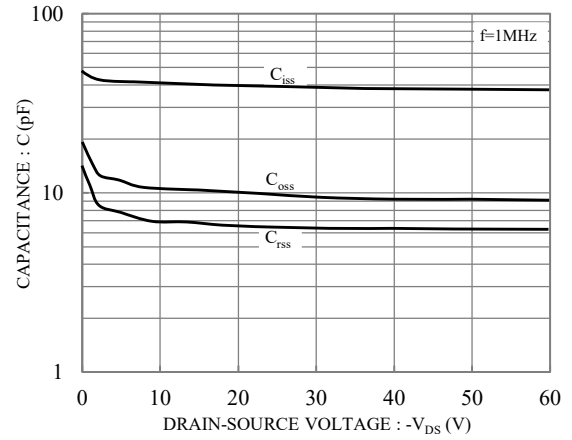


Fig.8 Capacitance vs. Drain-Source Voltage

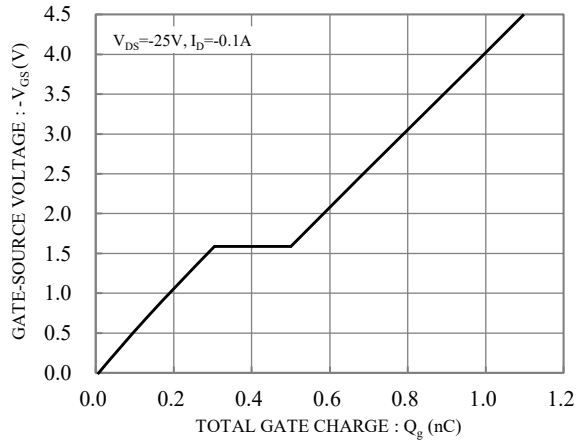


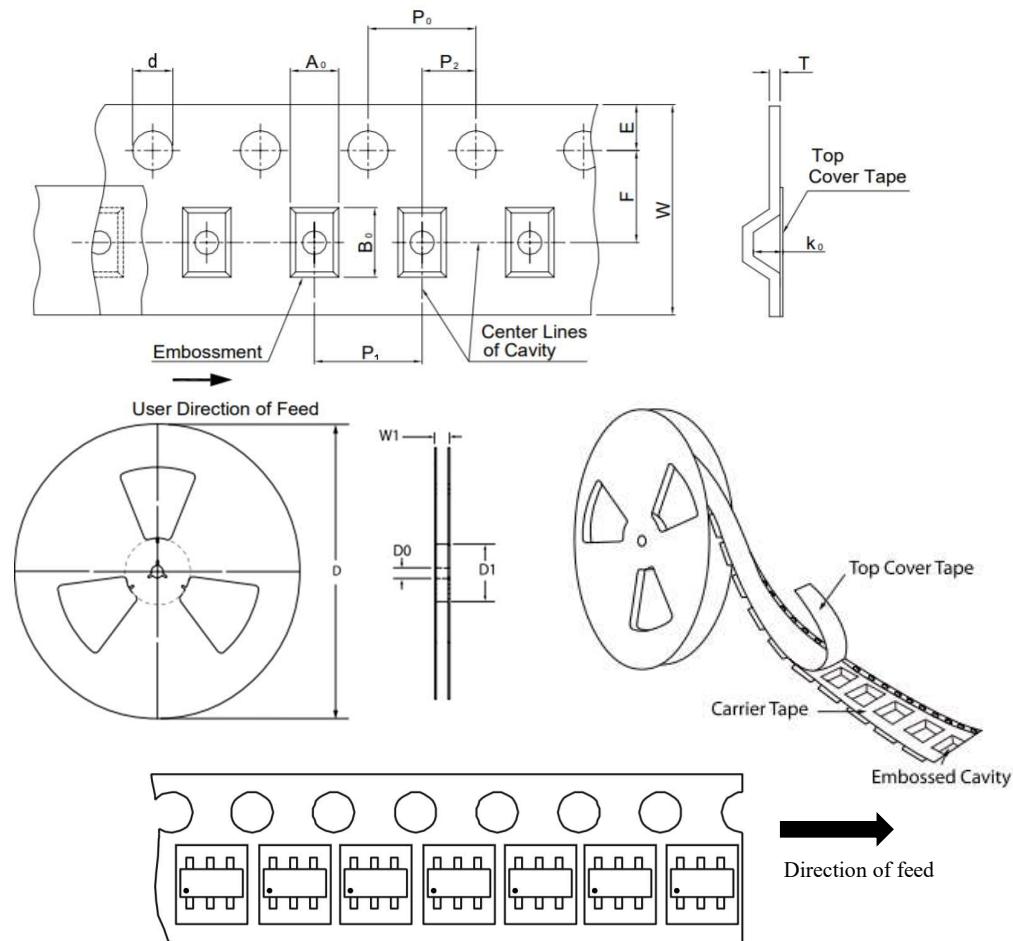
Fig.9 Gate Charge Characteristics



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-563
Carrier width	A ₀	1.80 ± 0.05
Carrier length	B ₀	1.80 ± 0.05
Carrier depth	K ₀	0.70 ± 0.05
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	0.60 ± 0.05
Tape width	W	8.00 ± 0.30
Reel width	W ₁	MAX. 14.50

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-563	7"	4,000

MARKING CODE

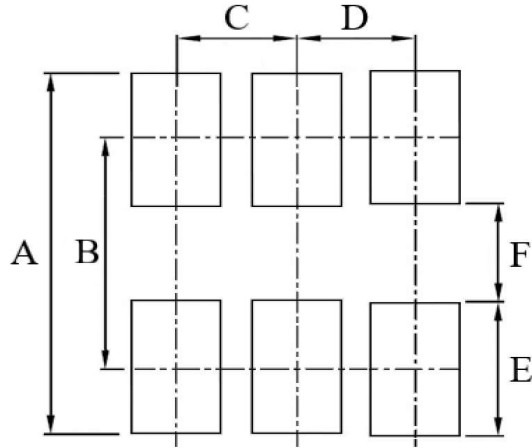
Part Number	Marking Code
SM06L6KDTH	MT



SM06L6KDTH

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SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D	E	F
SOT-563	2.30	1.45	0.50	0.50	0.85	0.60