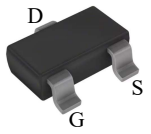
SM06P7KTDSH

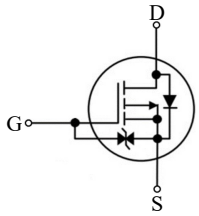
P-Channel Enhancement Mode Field Effect Transistor

FEATURES

· ESD protected gate>1kV (HBM)

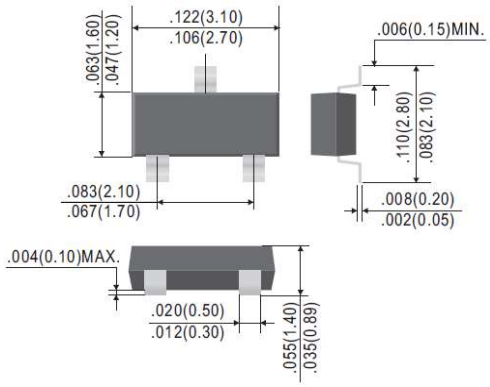
· Suffix "H" indicates Halogen-free parts, ex.SM06P7KTDSH





PIN	Description
G	Gate
S	Source
D	Drain

SOT-23



Dimensions in inchs and (millimeters)

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	-0.2	A
Pulsed Drain Current (Note 1)	I_{DM}	-1.2	A
Power Dissipation (Note 2)	P_D	0.5	W
Thermal Resistance from Junction to Ambient (Note 2)	$R_{\theta JA}$	250	℃/W
Operating and Storage Temperature Range	T_J ,T_{stg}	- 55 to + 150	℃

Note :

1. Pulse width≤100μs, Duty cycle≤2%, Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150℃

2. The value of $R_{\theta JA}$ is measured with device mounted on 1 in^2 FR-4 board with 2oz copper, in a still air environment with T_A=25℃. The value in any given application depends on the user's specific board design. The current rating is based on the t≤10s thermal resistance rating.

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Electrical Characteristics(T_A=25℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain Source Breakdown Voltage	I_D=-250μA	BV_{DSS}	-60	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=-48V	I_{DSS}	-	-	-1	μA
Gate-Body Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±10	μA
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	$V_{GS(th)}$	-0.8	-	-2.0	V
Static Drain Source On-Resistance	V_{GS}=-10V, I_D=-0.2A V_{GS}=-4.5V, I_D=-0.1A	$R_{DS(ON)}$	- -	- -	6 7	Ω
Forward Transconductance	V_{DS}=-25V, I_D=-0.1A	g_{FS}	-	289	-	mS
Dynamic						
Gate Resistance	V_{DS}=0, V_{GS}=0, f=1MHz	R_g	-	21	-	Ω
Total Gate Charge	V_{DS}=-25V, I_D=-0.1A, V_{GS}=-4.5V	Q_g	-	1.1	-	nC
Gate-Source Charge		Q_{gs}	-	0.3	-	
Gate-Drain Charge		Q_{gd}	-	0.2	-	
Input Capacitance	V_{DS}=-30V, V_{GS}=0V, f=1MHz	C_{iss}	-	38	-	pF
Output Capacitance		C_{oss}	-	9	-	
Reverse Transfer Capacitance		C_{rss}	-	6	-	
Turn-On Delay Time	V_{DD}=-25V, V_{GS}=-10V, I_D=0.1AΩ, R_g=6.8Ω	$t_{d(on)}$	-	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=-0.5A	V_{SD}	-	-	-1.3	V
Reverse Recovery Time	I_S=-0.1A, di/dt=100A/μs	t_{rr}	-	60	-	ns
Reverse Recovery Charge		Q_{rr}	-	58	-	nC

RATINGS AND CHARACTERISTIC CURVES

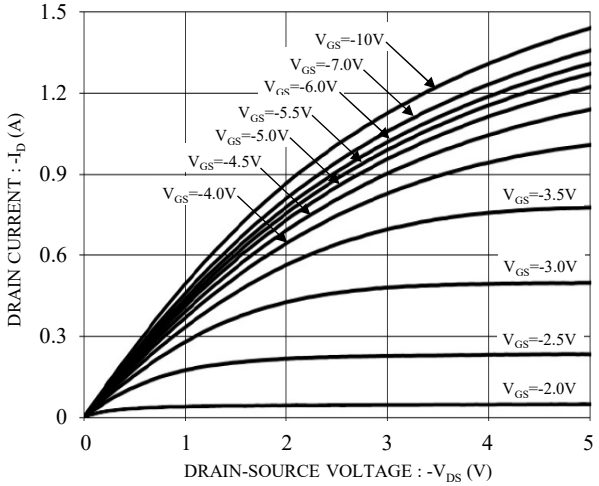


Fig.1 Typical Output Characteristics

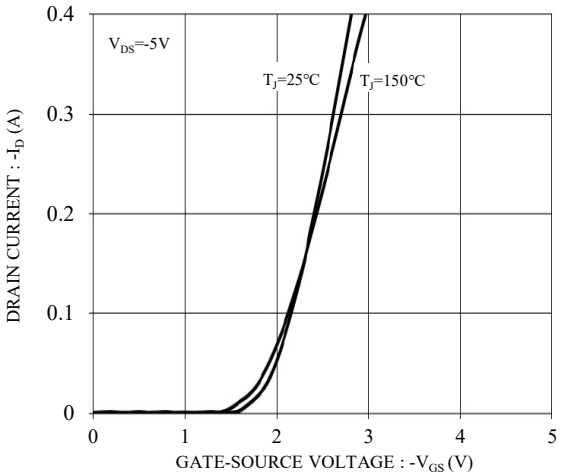


Fig.2 Typical Transfer Characteristics

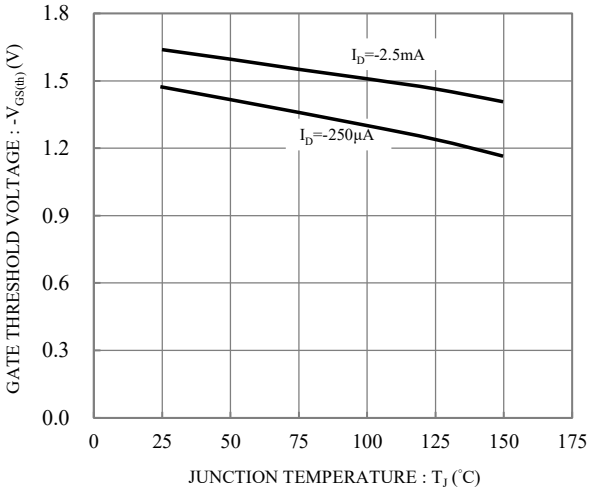


Fig.3 Gate Threshold Voltage vs. Junction Temperature

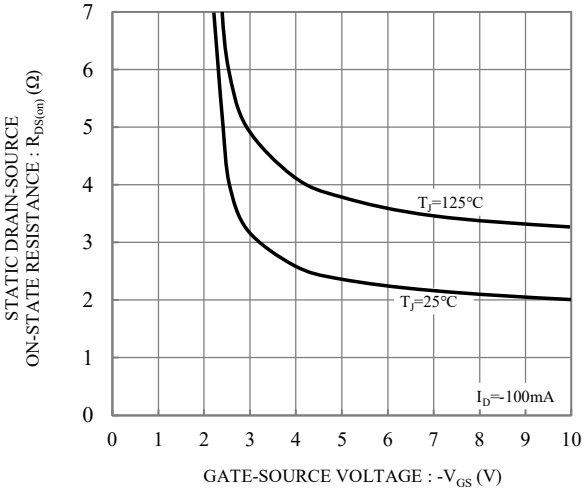


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

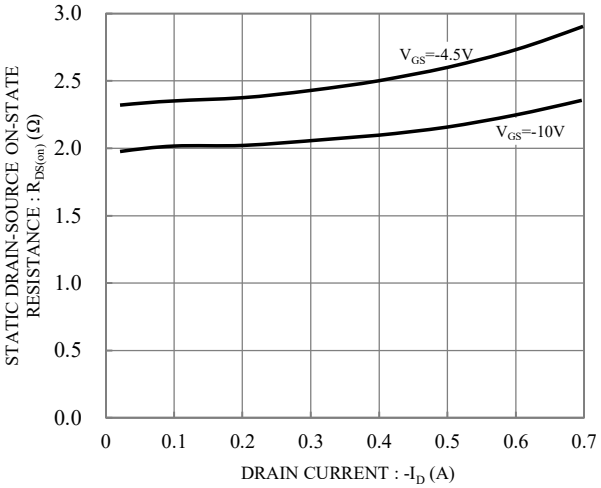


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

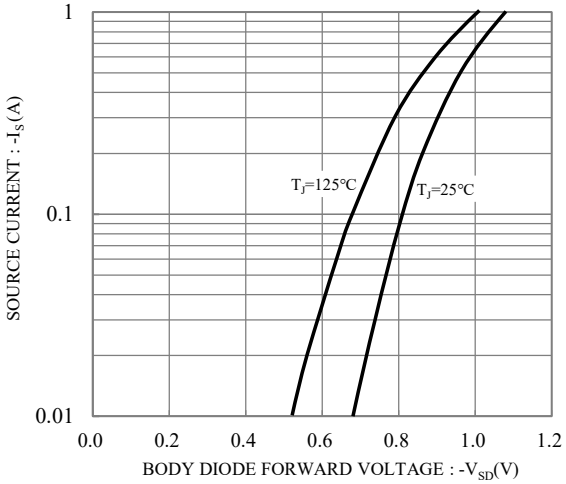


Fig.6 Body Diode Forward Voltage vs. Source Current

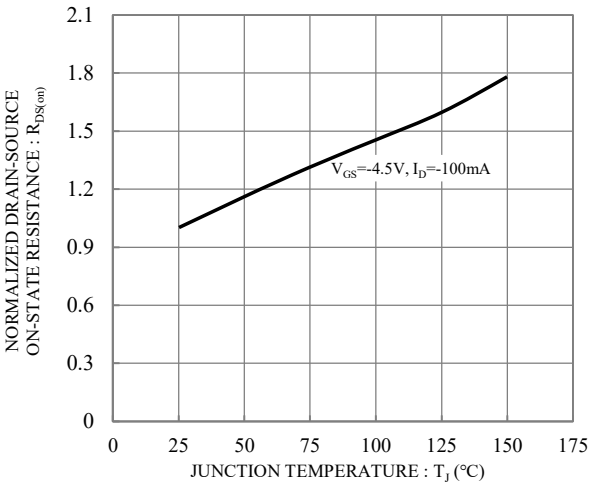


Fig.7 Drain-Source On-State Resistance vs. Junction Temperature

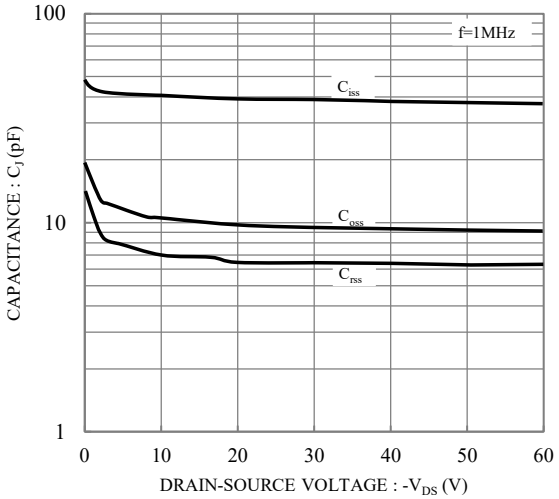


Fig.8 Capacitance vs. Drain-Source Voltage

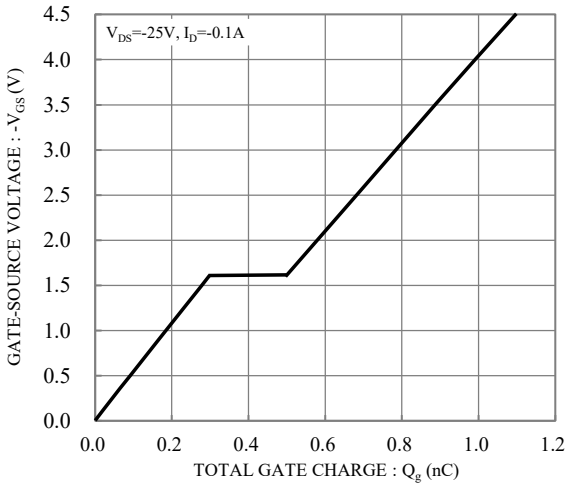
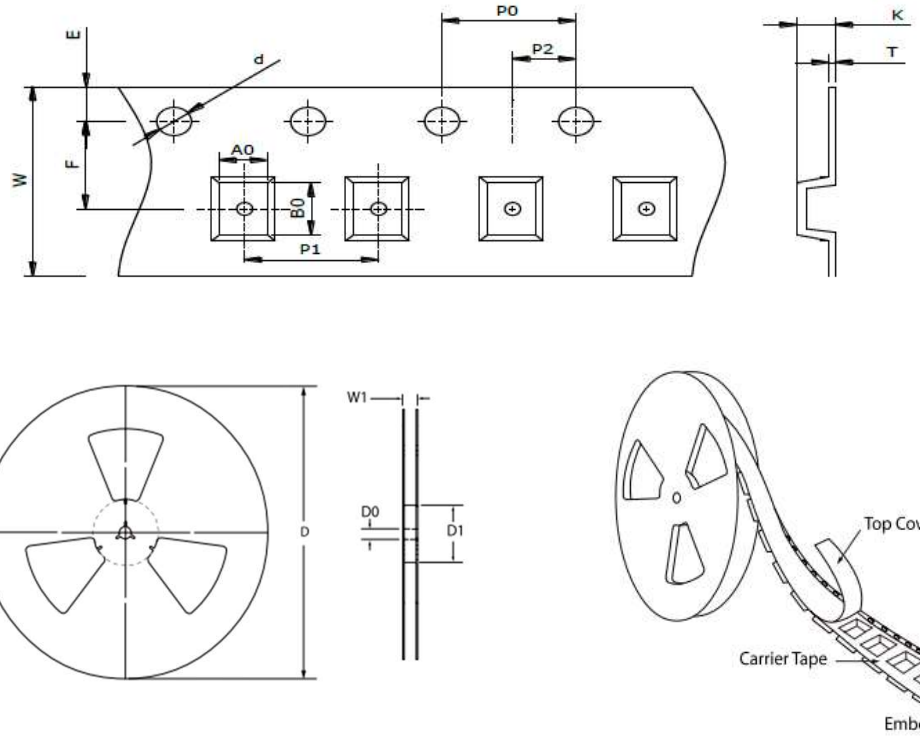


Fig.9 Gate Charge Characteristics

TAPE & REEL SPECIFICATION



Item	Symbol	SOT-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
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	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W1	MAX. 14.50

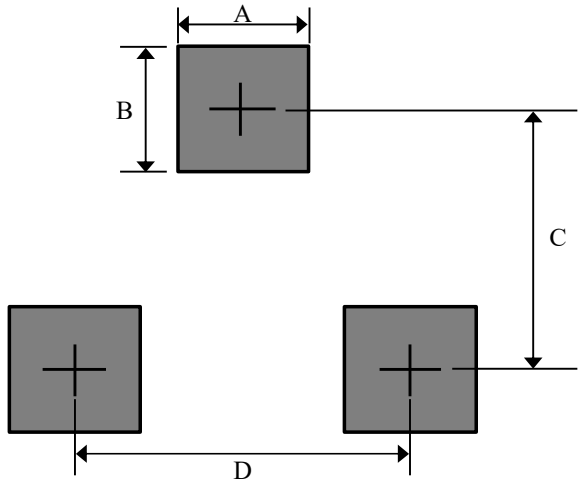
ORDER INFORMATION

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

MARKING CODE

Part Number	Marking Code
SM06P7KTDSH	XS

SUGGESTED SOLDER PAD LAYOUT



Unit : mm

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