SMN0290KLPH

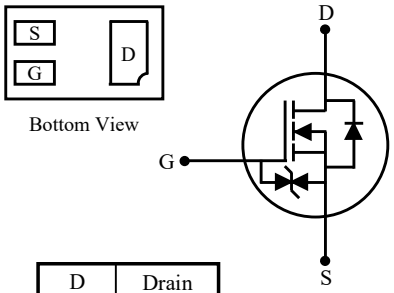
N-Channel Enhancement Mode Field Effect Transistor

FEATURES

· Very Fast Switching

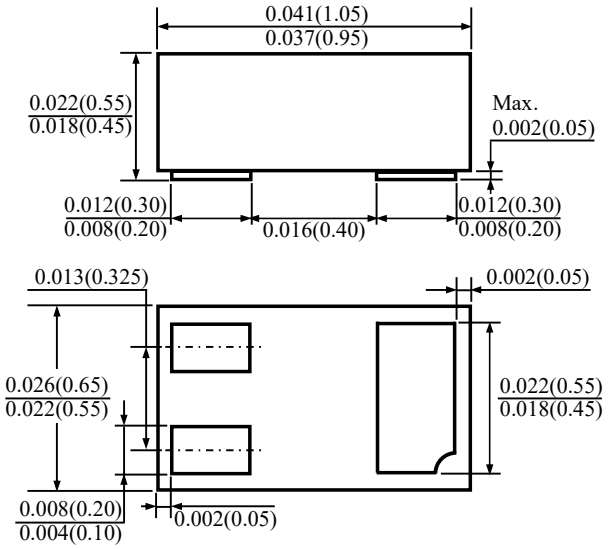
· ESD Protection

· Suffix "H" indicates Halogen-free parts, ex. SM290KLPH



D	Drain
G	Gate
S	Source

DFN1006-3



Dimensions in inch and (millimeter)

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current	T_A=25℃	I_D	1	A
Peak Drain Current (t_P≤10μs)		I_{DM}	4	A
Power Dissipation	(Note 1) (Note 2)	P_D	360 715	mW
Thermal Resistance from Juntion to Ambient	(Note 1) (Note 2)	$R_{\theta JA}$	360 175	℃/W
Operating and Storage Temperature Range		T_J,T_{stg}	- 55 to + 150	℃

Note :

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

2. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

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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}	20	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=20V	I_{DSS}	-	-	1	μA
Gate Source Leakage Current	V_{GS}=±4.5V	I_{GSS}	-	-	±0.5	μA
	V_{GS}=±8V		-	-	±2	
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	0.50	-	0.95	V
Static Drain Source On-Resistance	V_{GS}=4.5V, I_D=500mA	$R_{DS(ON)}$	-	-	0.38	Ω
	V_{GS}=2.5V, I_D=400mA		-	-	0.62	
	V_{GS}=1.8V, I_D=100mA		-	-	1.10	
Dynamic						
Total Gate Charge	V_{DS}=10V, I_D=1A, V_{GS}=2.5V	Q_g	-	0.65	-	nC
	V_{DS}=10V, I_D=1A, V_{GS}=4.5V		-	1.17	-	
Gate-Source Charge		Q_{gs}	-	0.30	-	
Gate-Drain Charge		Q_{gd}	-	0.20	-	
Input Capacitance	V_{GS}=0V, V_{DS}=10V, f=1MHz	C_{iss}	-	72	-	pF
Output Capacitance		C_{oss}	-	14	-	
Reverse Transfer Capacitance		C_{rss}	-	12	-	
Turn-On Delay Time	V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A, R_G=10Ω,	$t_{d(on)}$	-	12	-	ns
Turn-On Rise Time		t_r	-	6	-	
Turn-Off Delay Time		$t_{d(off)}$	-	13	-	
Turn-Off Fall Time		t_f	-	10	-	
Drain-Source Body Diode						
Diode Forward Voltage	V_{GS}=0V, I_S=0.5A	V_{SD}	-	-	1.3	V
Diode Continuous Forward Current	-	I_S	-	-	1	A
Reverse Recovery Time	I_S=1A, di/dt=100A/μs	t_{rr}	-	5.2	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.2	-	nC

RATINGS AND CHARACTERISTIC CURVES

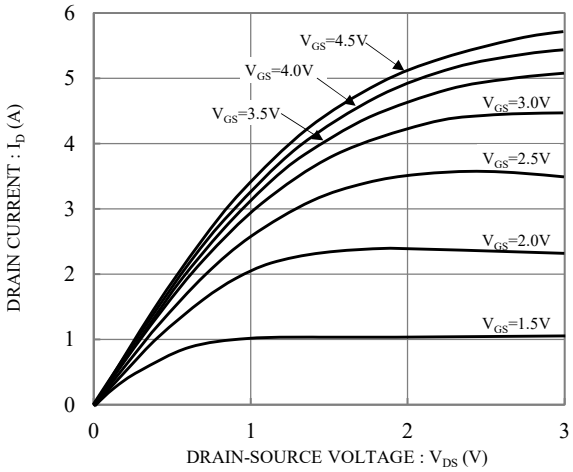

Fig.1 Typical Output Characteristics

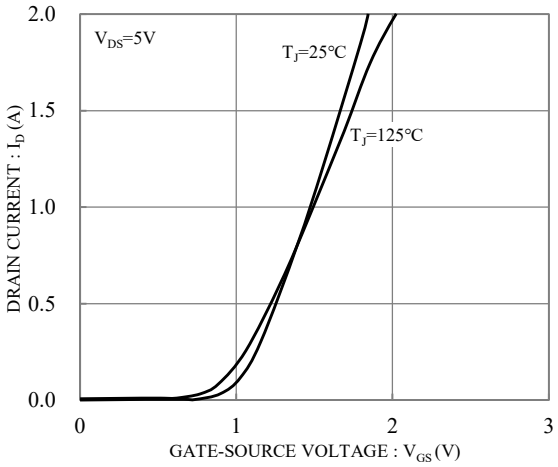

Fig.2 Typical Transfer Characteristics

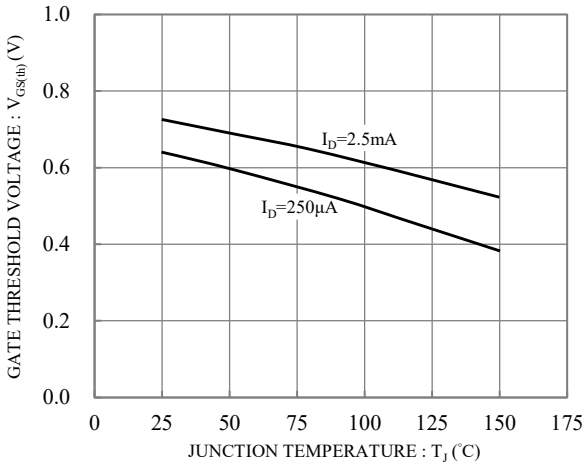

Fig.3 Gate Threshold Voltage vs. Junction Temperature

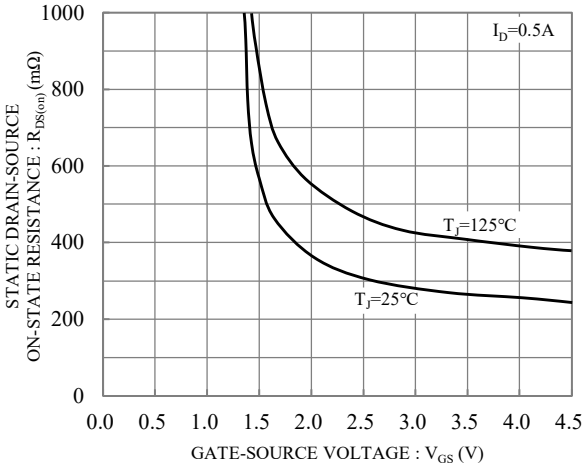

Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

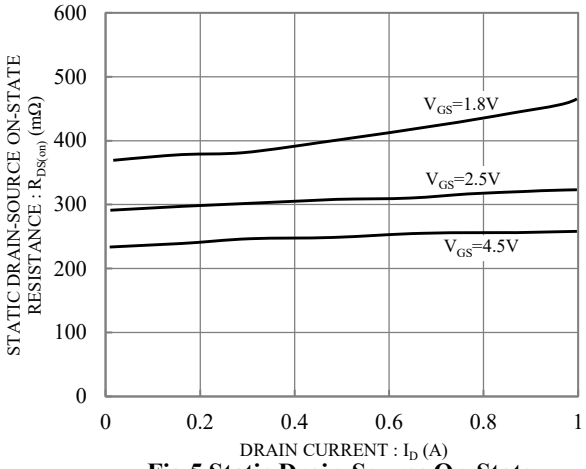

Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

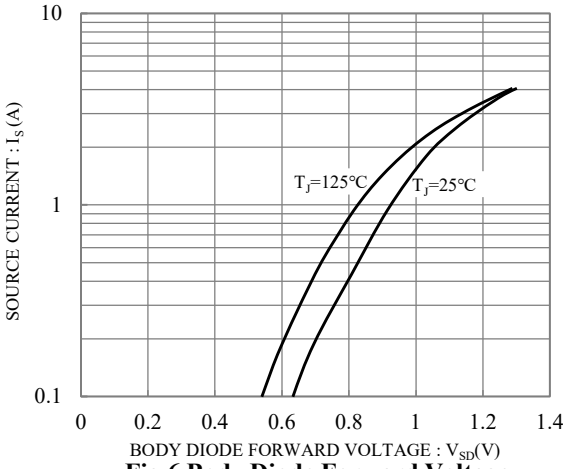

Fig.6 Body Diode Forward Voltage vs. Source Current

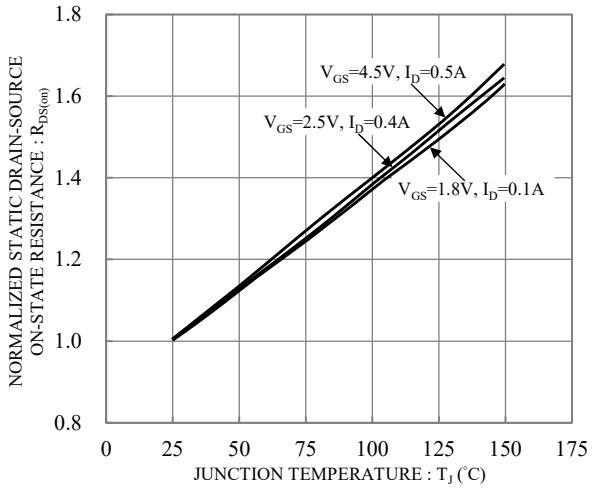

Fig.7 Drain-Source On-State Resistance vs. Junction Tempearture

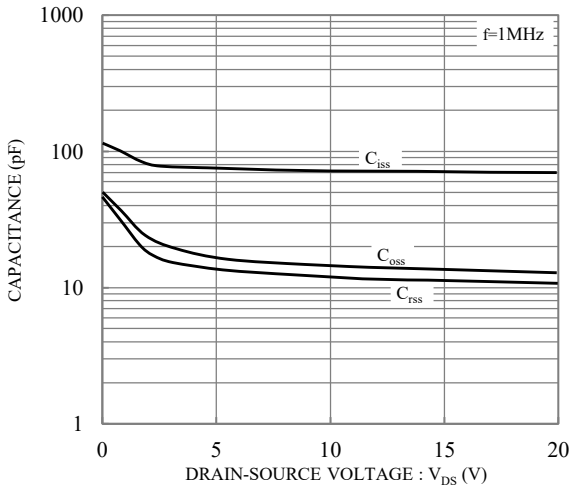

Fig.8 Capacitance vs. Drain-Source Voltage

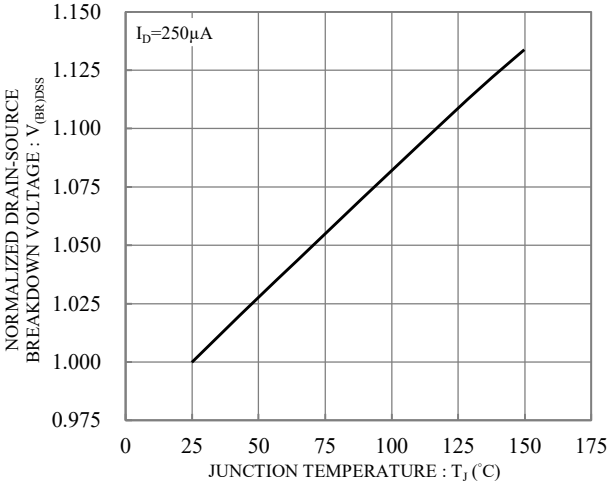

Fig.9 Breakdown Voltage vs. Junction Temperature

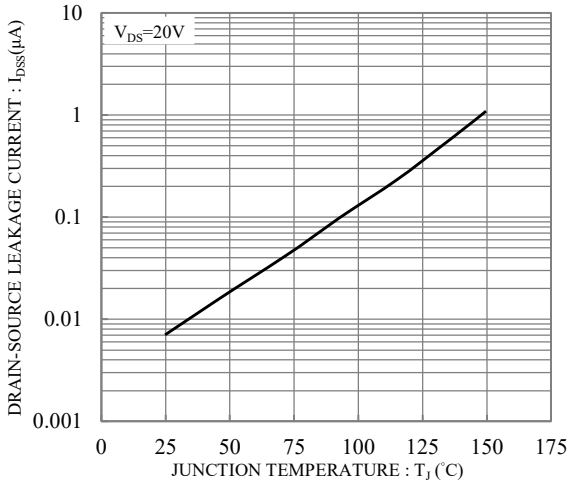

Fig.10 Drain-Source Leakge Current vs. Junction Temperature

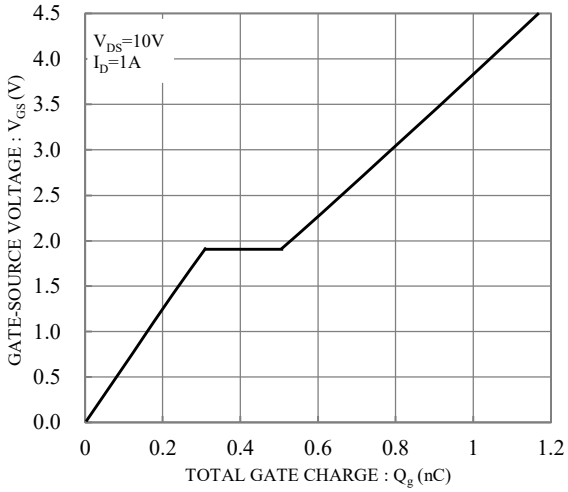

Fig.11 Gate Charge Characteristics

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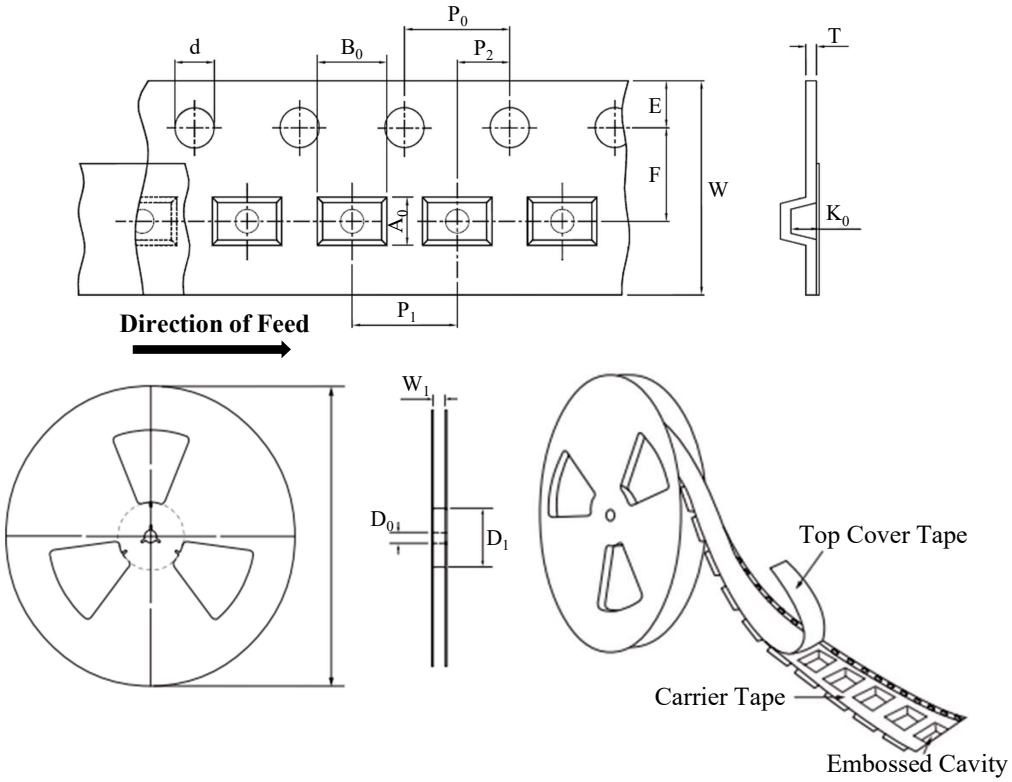
TAPE & REEL SPECIFICATION



Item	Symbol	DFN1006-3
Carrier width	A_0	0.85 ± 0.10
Carrier length	B_0	1.25 ± 0.10
Carrier depth	K_0	0.60 ± 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. 54.00
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	2.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	MAX. 0.60
Tape width	W	8.00 ± 0.30
Reel width	W1	8.40 ± 1.50

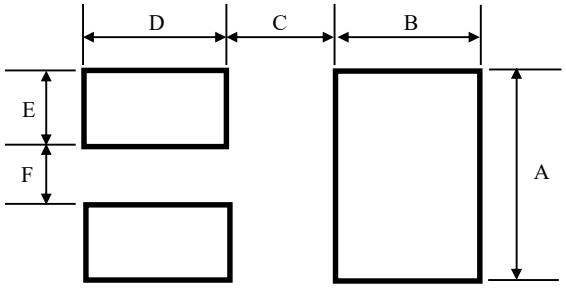
ORDER INFORMATION

Package	Reel Size	Quantity
DFN1006-3	7"	10,000

MARKING CODE

Part Number	Marking Code
SMN0290KLPH	MJ

SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D	E	F
DFN1006-3	0.70	0.40	0.30	0.40	0.25	0.20