

FEATURES

| $R_{DS(ON)} = 125\text{m}\Omega$ (Typ.) @ $V_{GS} = 4.5\text{V}$

| $R_{DS(ON)} = 190\text{m}\Omega$ (Typ.) @ $V_{GS} = 2.5\text{V}$

| High density cell design for low RDS(on)

| Material: Halogen free

| Reliable and rugged

| Avalanche Rated

| Low leakage current



DFN1006-3L



Marking

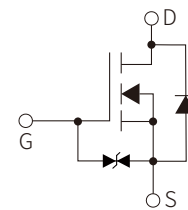
APPLICATION

| PWM applications

| Load switch

| Power management in portable/desktop PCs

| DC/DC conversion



Schematic Symbol

APPROVALS

RoHS Compliance with 2011/65/EU

HF Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	BV_{DSS}	20	V	
Continuous Drain Current	I_D	$T_A = 25^\circ\text{C}$	0.9	A
		$T_A = 100^\circ\text{C}$	0.6	A
Pulsed Drain Current	I_{DM}	3.6	A	
Gate-Source Voltage	V_{GS}	± 10	V	
Maximum Power Dissipation	P_D	0.23	W	
Junction-to-Ambient Thermal Resistance $t \leq 10\text{s}$	$R_{\theta JA}$	543	$^\circ\text{C}/\text{W}$	
Operating Junction Temperature	T_J	150	$^\circ\text{C}$	
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$	

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±10	μA
On Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.65	1.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.5A		125	165	mΩ
		V _{GS} =2.5V, I _D =0.3A		190	300	mΩ
Charges, Capacitances And Gate Resistance						
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		60		pF
Output capacitance	C _{oss}			22		pF
Reverse transfer capacitance	C _{rss}			12		pF
Total Gate Charge	Q _{g(TOT)}	V _{GS} =4.5V, V _{DS} =10V I _D =0.9A		1		nC
Gate-to-Source Charge	Q _{gs}			0.28		nC
Gate-to-Drain Charge	Q _{gd}			0.22		nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V, I _D =0.5A V _{GS} =4.5V, R _G =10Ω		2		nS
Turn-on Rise Time	t _r			20		nS
Turn-Off Delay Time	t _{d(off)}			10		nS
Turn-Off Fall Time	t _f			23		nS
Body Diode Characteristics						
Forward Voltage	V _{SD}	V _{GS} =0V, I _S =0.9A			1.5	V

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

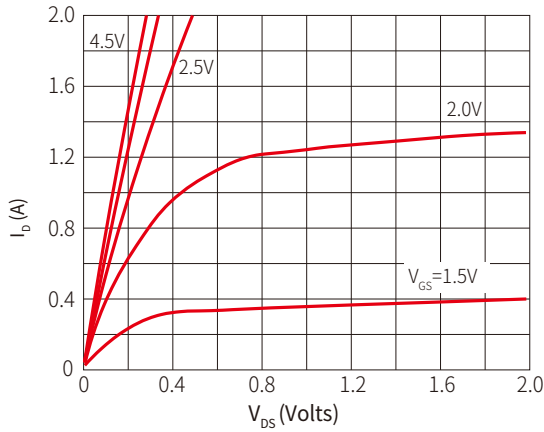


Figure 2: Typical Transfer Characteristics

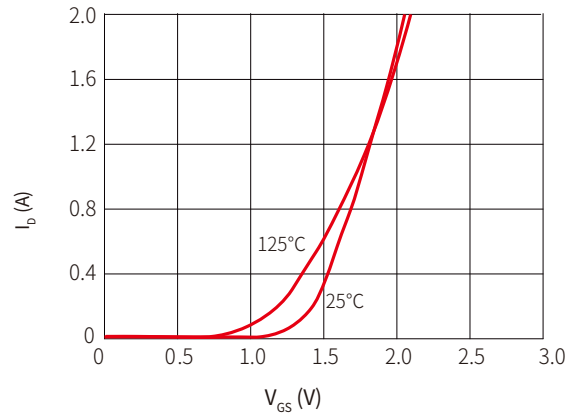


Figure 3: On-Resistance vs. Drain Current

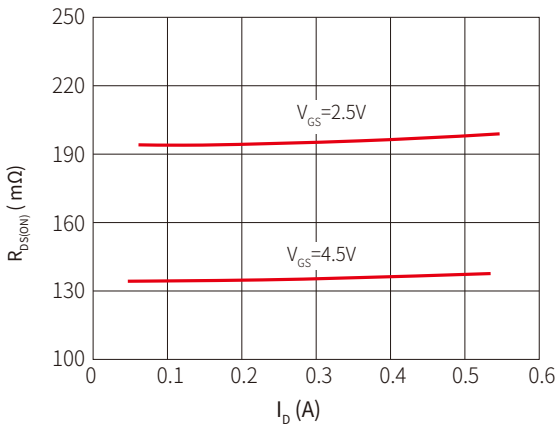


Figure 4: Body Diode Characteristics

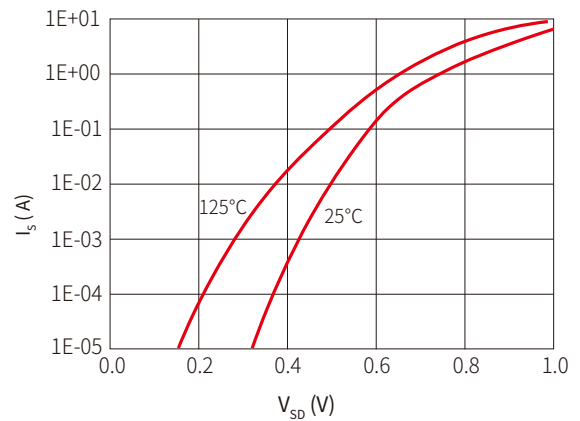


Figure 5: Gate Charge Characteristics

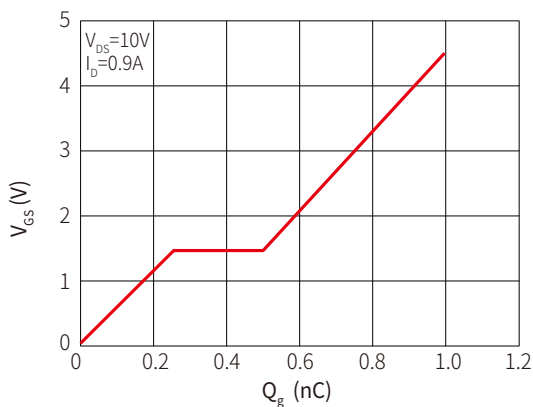


Figure 6: Capacitance Characteristics

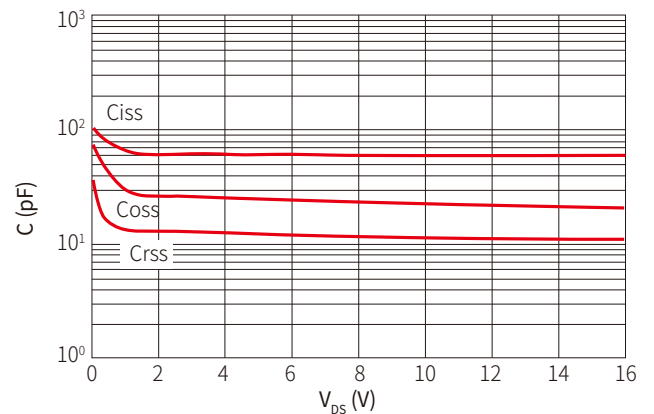


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

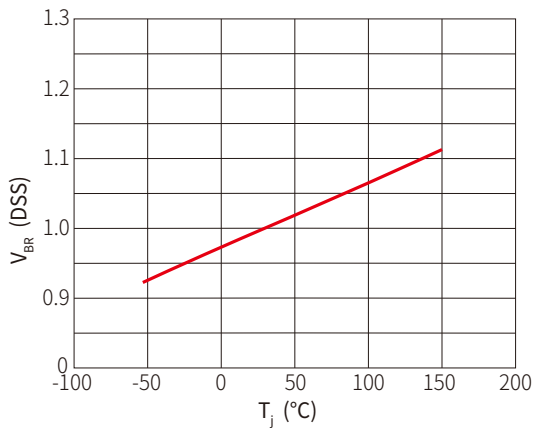


Figure 8: Normalized on Resistance vs. Junction Temperature

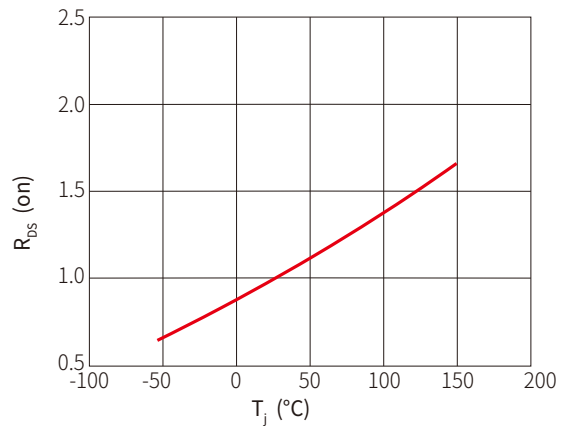


Figure 9: Maximum Safe Operating Area

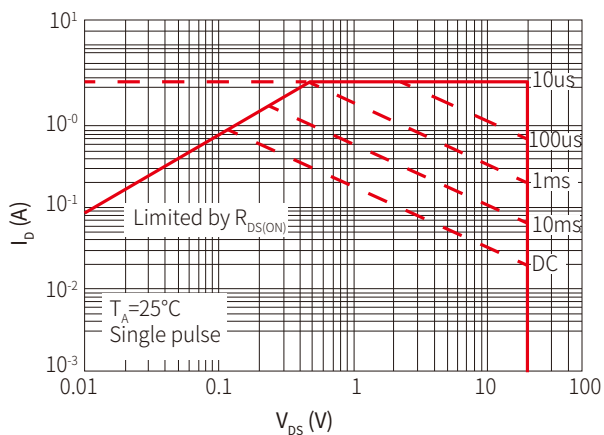


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

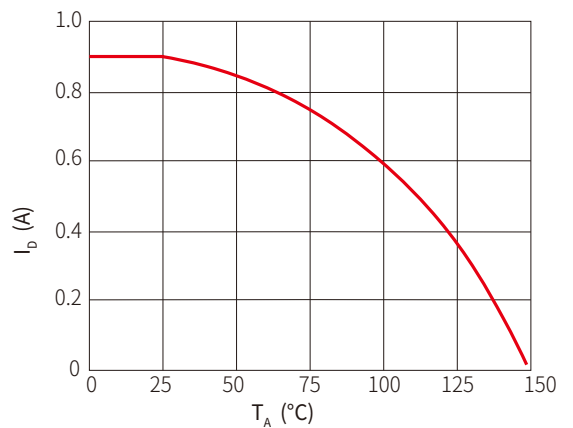
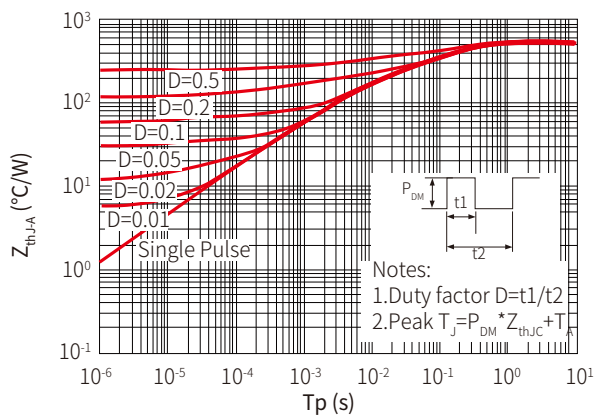
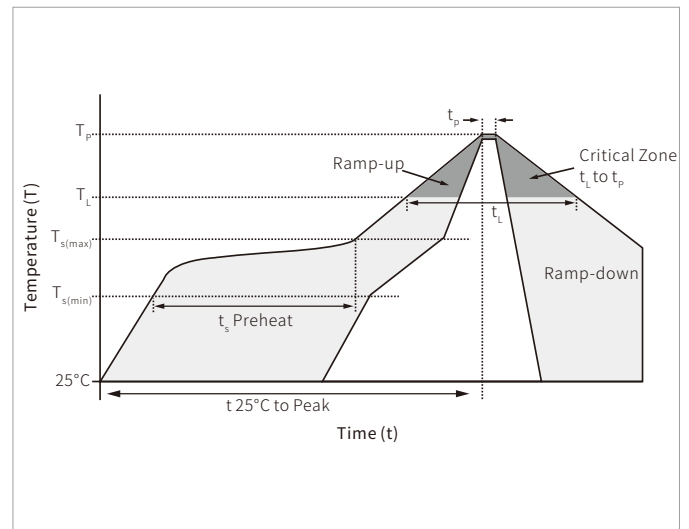


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

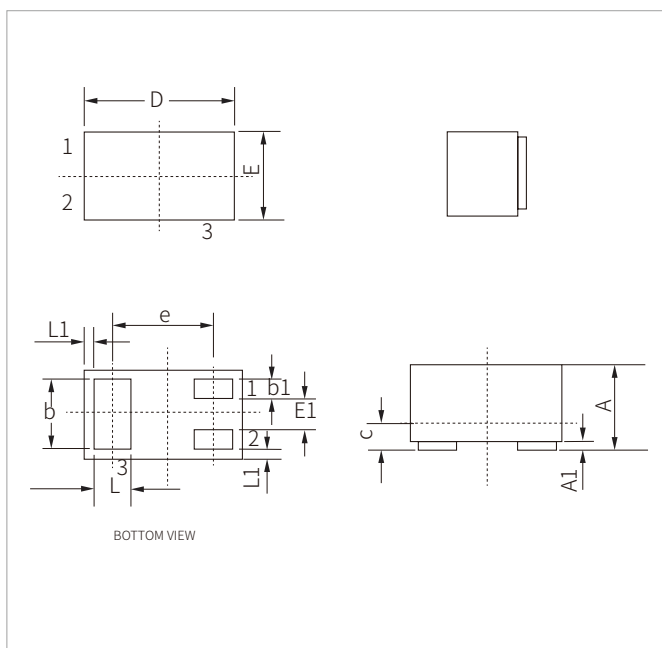


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

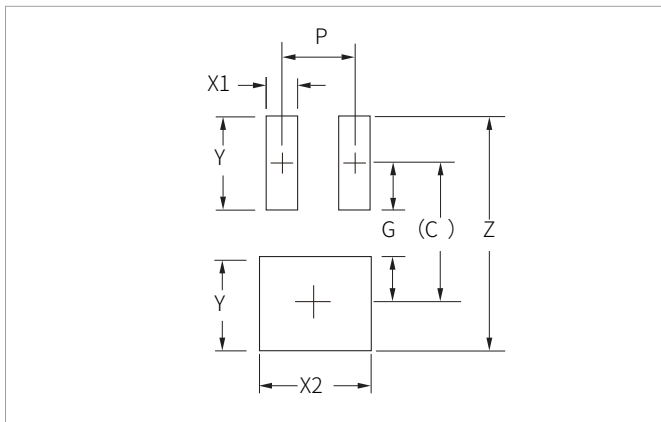


DFN1006-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.35	0.60	0.014	0.024
A1	0	0.05	0	0.002
b	0.45	0.55	0.018	0.022
b1	0.10	0.20	0.004	0.008
c	0.12	0.18	0.005	0.007
D	0.95	1.05	0.037	0.041
e	0.65BSC		0.026BSC	
E	0.55	0.70	0.022	0.027
E1	0.20	0.30	0.008	0.014
L	0.20	0.30	0.008	0.012
L1	0.05REF		0.002REF	

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
C	(0.85)	(0.033)
P	0.40	0.016
G	0.30	0.012
X1	0.20	0.008
X2	0.60	0.024
Y	0.55	0.022
Z	1.40	0.055

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM3134K	DFN1006-3L	10000PCS	7"

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