

DFN1006-3L Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=20V$
- $I_D=0.8A$
- $R_{DS(on)}@V_{GS}=4.5V < 300m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 350m\Omega$
- $R_{DS(on)}@V_{GS}=1.8V < 700m\Omega$
- ESD protected(HBM) up to 2KV
- Halogen and Antimony Free

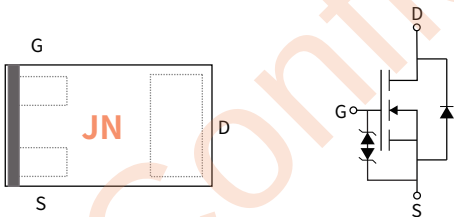
Applications

- Load switch
- PWM application
- Power Management

Mechanical Data

- Case: DFN1006-3L
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Ordering Information

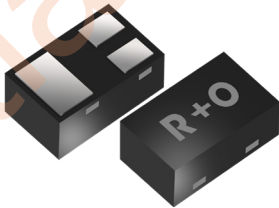
PACKAGE	PACKAGE CODE	REEL(pcs)	DELIVERY MODE
DFN1006-3L	R1	10000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	V_{DS}	V	20
Gate-source Voltage	V_{GS}	V	± 12
Drain Current	I_D	A	0.8
Pulsed Drain Current ⁽¹⁾	I_{DM}	A	3.2
Total Power Dissipation	P_D	W	0.35
ESD Protected Up to	ESD(HBM)	kV	2.0
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	150
Thermal Resistance Junction-to-Ambient ⁽²⁾	$R_{\theta J-A}$	°C /W	357

Drain-source Voltage
20 V
Drain Current
0.8 Ampere

DFN1006-3L



● Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	V	20	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS}=0V$	μA	—	—	± 10
Gate Threshold Voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.35	0.75	1.1
Static Drain-Source On-Resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.6A$	m Ω	—	210	300
		$V_{GS}=2.5V, I_D=0.5A$		—	290	450
		$V_{GS}=1.8V, I_D=0.2A$		—	470	700
Forward Transconductance ⁽³⁾	g_{FS}	$V_{DS}=5V, I_D=0.5A$	S	—	1.5	—

● Dynamic Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	pF	—	56	—
Output Capacitance	C_{oss}			—	20	—
Reverse Transfer Capacitance	C_{rss}			—	2.5	—

● Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_D=0.5A, R_{GEN}=10\Omega$	nS	—	2	—
Turn-on Rise Time	t_r		nS	—	18.8	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	10	—
Turn-off fall Time	t_f		nS	—	23	—
Total Gate Charge	Q_g	$V_{DS}=10V, I_D=0.5A, V_{GS}=4.5V$	nC	—	1	—
Gate-Source Charge	Q_{gs}		nC	—	0.28	—
Gate-Drain Charge	Q_{gd}		nC	—	0.22	—

● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage ⁽³⁾	V_{SD}	$I_S=0.8A, V_{GS}=0V$	V	—	—	1.2
Maximum Body-Diode Continuous Current ⁽²⁾	I_S	—	A	—	—	0.8

Note :

(1) Repetitive Rating: Pulse width limited by maximum junction temperature.

(2) Surface Mounted on FR4 Board, $t \leq 10sec$.(3) Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

● Package Outline Dimensions (DFN1006-3L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.40	0.50	0.016	0.020
A1	-	0.05	-	0.002
D	0.90	1.10	0.035	0.043
E	0.55	0.65	0.021	0.025
e	0.35BSC		0.014BSC	
e1	0.65BSC		0.025BSC	
b	0.20	0.30	0.008	0.012
b1	0.20	0.30	0.008	0.012
L	0.10	0.20	0.004	0.008
L1	0.50	0.70	0.0197	0.0275

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
G	0.65	0.75	0.026	0.030
H	0.35	0.45	0.014	0.018
X	0.30	0.40	0.012	0.016
X1	0.25	0.35	0.010	0.014
Y	0.55	0.65	0.022	0.026
Y1	0.15	0.25	0.006	0.010