DFN1006-3L Plastic-Encapsulate MOSFETS

Features

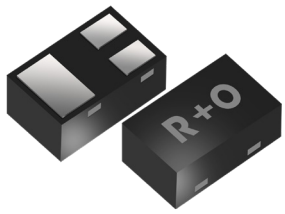
- V_{DSS}=-20V
- I_D=-0.65A
- $R_{DS(on)}$@VGS=-4.5V ＜ 850mΩ
- $R_{DS(on)}$@VGS=-2.5V ＜ 1200mΩ
- ESD protected(HBM) up to 2KV
- Low Gate Charge and Rdson

Drain-source Voltage
-20 V
Drain Current
-0.65 Ampere

Applications

- Load switch
- PWM application
- Power Management

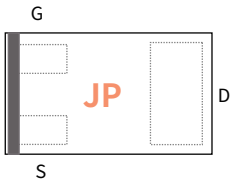
DFN1006-3L

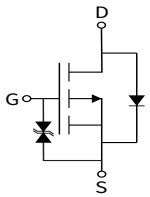


Mechanical Data

- 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	-0.65
Pulsed Drain Current (1)	I_{DM}	A	-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)	$R_{\theta J\text{-}A}$	°C /W	357

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=-250μA	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}= ±10V, V_{DS}=0V	μA	—	—	±10
Gate Threshold Voltage (3)	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	V	-0.35	-0.62	-1.2
Static Drain-Source On-Resistance (3)	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-0.5A	mΩ	—	580	850
		V_{GS}=-2.5V, I_D=-0.3A		—	855	1200
Forward Transconductance(3)	g_{FS}	V_{DS}=-5V, I_D=-0.3A	S	—	2	—

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	—	71	—
Output Capacitance	C_{oss}			—	26	—
Reverse Transfer Capacitance	C_{rss}			—	15	—

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

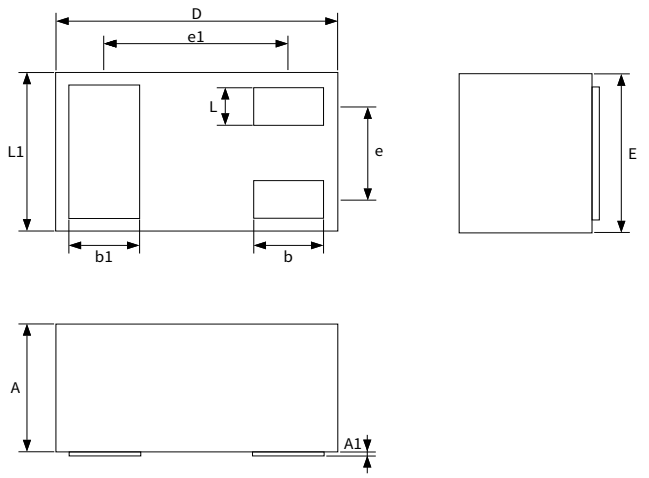
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-4.5V, V_{DD}=-10V, I_D=-0.5A ,R_{GEN}=3Ω	nS	—	4	—
Turn-on Rise Time	t_r		nS	—	19	—
Turn-off Delay Time	$t_{D(off)}$		nS	—	16	—
Turn-off fall Time	t_f		nS	—	25	—
Total Gate Charge	Q_g	V_{DS}=-10V, I_D=-0.5A V_{GS}=-4.5V	nC	—	1.24	—
Gate-Source Charge	Q_{gs}		nC	—	0.37	—
Gate-Drain Charge	Q_{gd}		nC	—	0.27	—

Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage(3)	V_{SD}	I_S=-0.65A, V_{GS}=0V	V	—	—	-1.2
Maximum Body-Diode Continuous Current(2)	I_S	—	A	—	—	-065

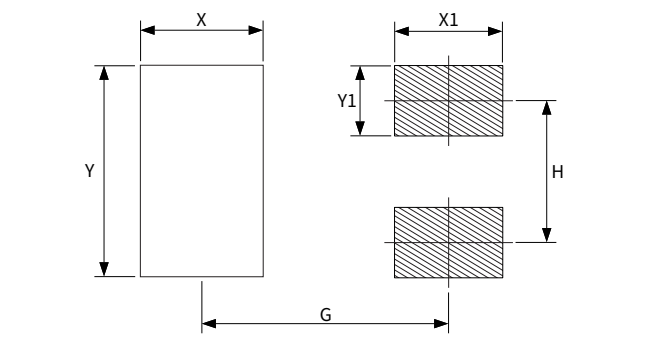
Note :
(1)Repetitive Rating: Pulse width limited by maximum junction temperature.
(2)Surface Mounted on FR4 Board, t ⩽ 10sec.
(3)Pulse Test: Pulse Width ⩽ 300μs, Duty Cycle ⩽ 2%.

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