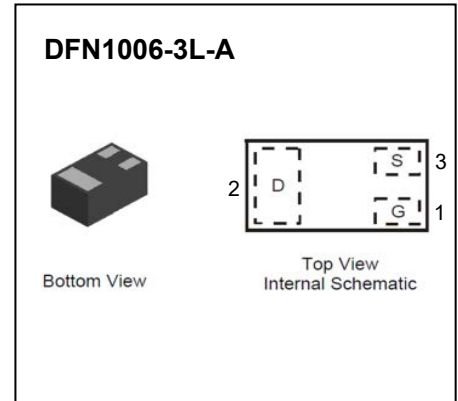


## DFN1006-3L-A Plastic-Encapsulate MOSFETs

### CJBB3139K P-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-20V	520mΩ@-4.5V	-0.66A
	780mΩ@-2.5V	
	950mΩ(TYP)@-1.8V	



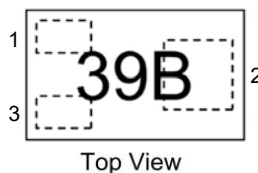
#### FEATURE

- Lead Free Product is Acquired
- Surface Mount Package
- P-Channel Switch with Low  $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected Gate

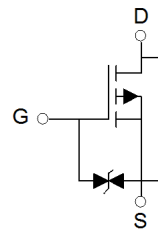
#### APPLICATION

- Load/ Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

#### MARKING:



#### Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Typical Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current (note 1)	$I_D$	-0.66	A
Pulsed Drain Current ( $t_p=10\mu\text{s}$ )	$I_{DM}$	-1.2	A
Power Dissipation (note 1)	$P_D$	100	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	1250	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~ 150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	$^{\circ}\text{C}$

## MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$  unless otherwise noted

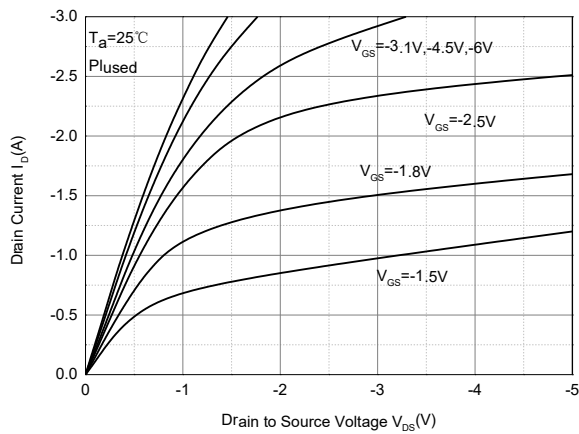
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =-250μA	-20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> = 0V			±20	uA
Gate threshold voltage (note 2)	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.35	-0.61	-1.1	V
Drain-source on-resistance(note 2)	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1A		450	520	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-0.8A		650	780	mΩ
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-0.5A		950		mΩ
Forward tranconductance(note 2)	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-0.54A		1.2		S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> =-0.5A, V <sub>GS</sub> = 0V			-1.2	V
DYNAMIC PARAMETERS(note 4)						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V, f =1MHz		113		pF
Output Capacitance	C <sub>oss</sub>			15		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			9		pF
SWITCHING PARAMETERS (note 4)						
Turn-on delay time (note 3)	t <sub>d(on)</sub>	V <sub>DD</sub> =-4.5V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-200mA, R <sub>GEN</sub> =10Ω		9		ns
Turn-on rise time (note 3)	t <sub>r</sub>			5.7		ns
Turn-off delay time (note 3)	t <sub>d(off)</sub>			32.6		ns
Turn-off fall time (note 3)	t <sub>f</sub>			20.3		ns

### Notes:

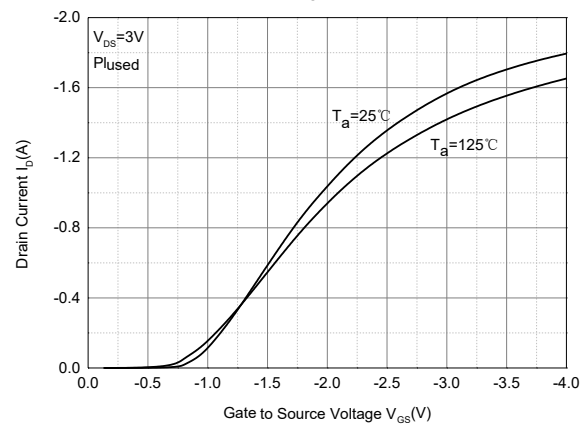
1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 $\mu s$ , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

## Typical Characteristics

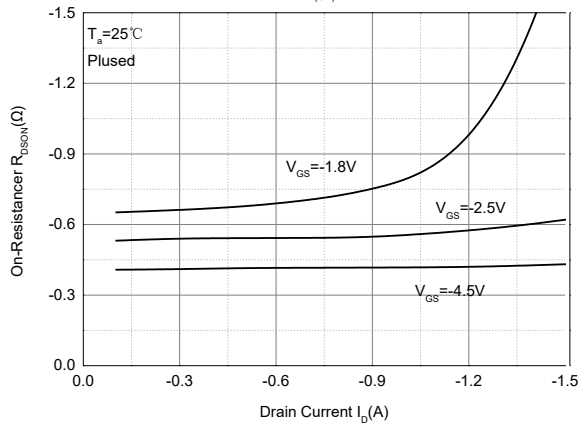
Output Characteristics



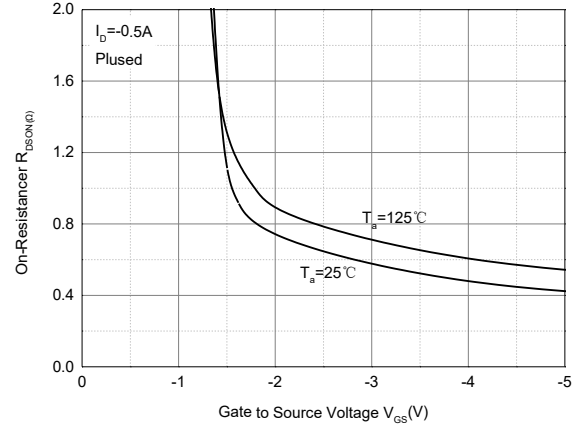
Transfer Characteristics



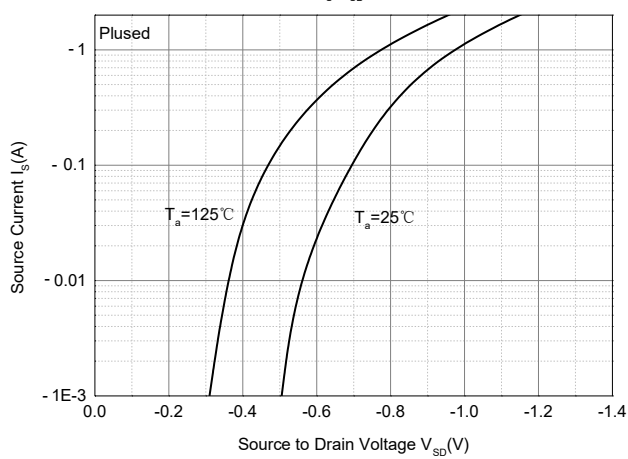
$R_{DS(ON)} - I_D$



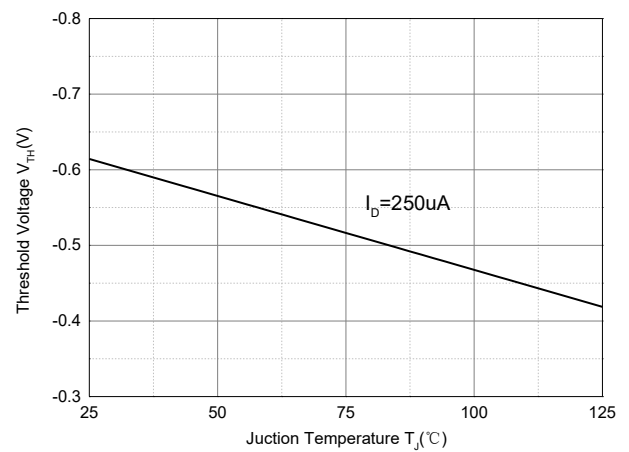
$R_{DS(ON)} - V_{GS}$



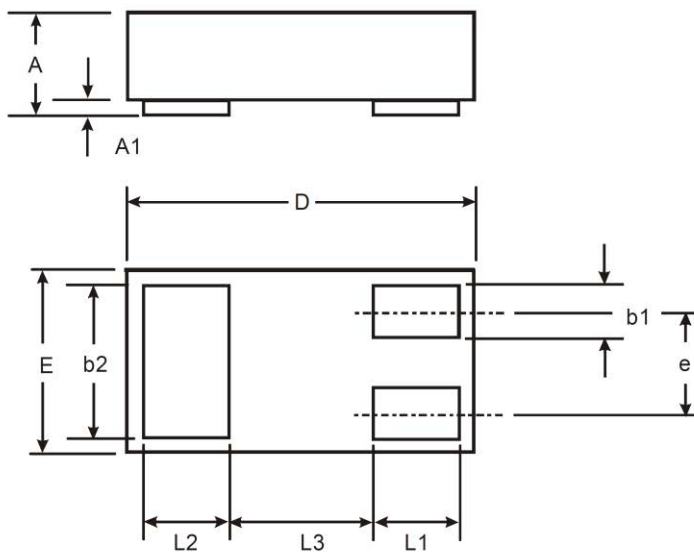
$I_S - V_{SD}$



Threshold Voltage

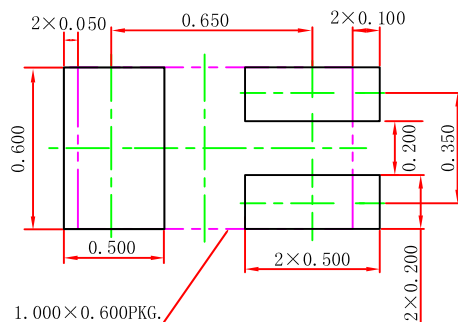


## DFN1006-3L-A Package Outline Dimensions



DFN1006-3L-A			
Dim	Min.	Max.	Typ.
A	0.34	0.40	0.37
A1	0.00	0.05	0.03
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	-	-	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	-	-	0.40
All Dimensions in mm			

## DFN1006-3L-A Suggested Pad Layout



### Note:

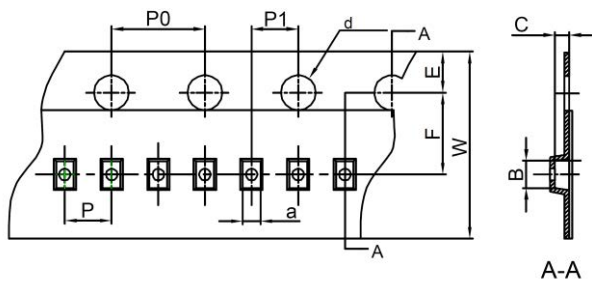
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.050$ mm.
3. The pad layout is for reference purposes only.

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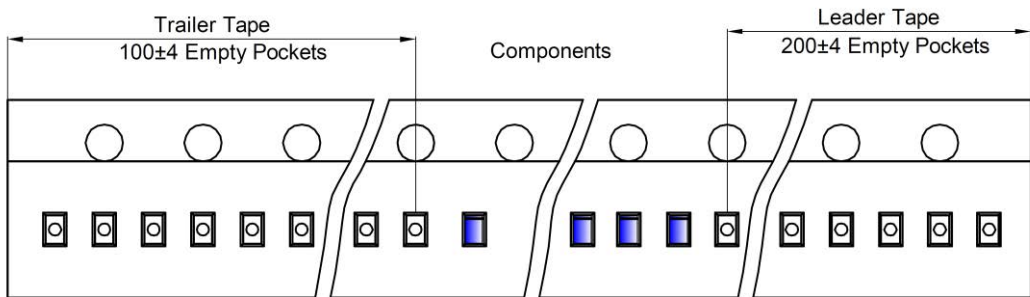
# DFN1006-3L-A Tape and Reel

## DFN1006-3L-A Embossed Carrier Tape

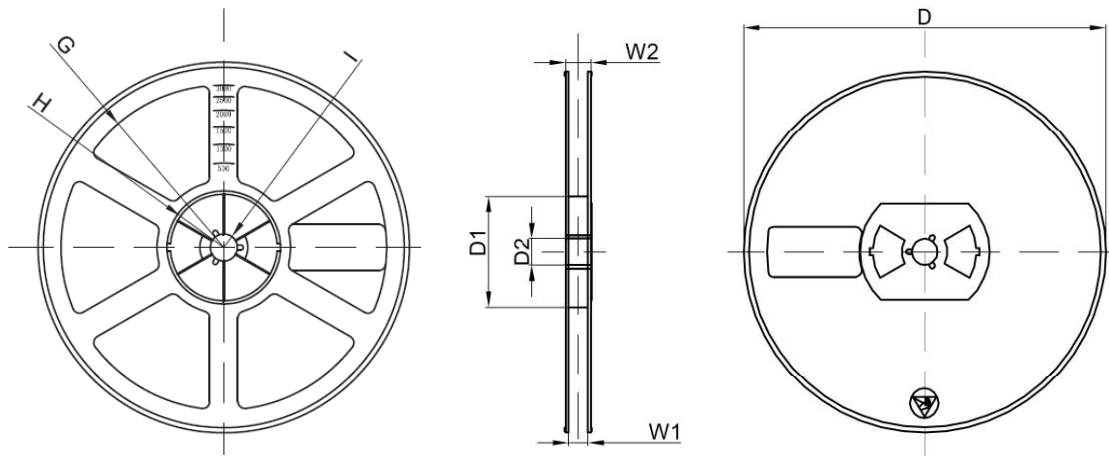


Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFN1006-3L-A	0.66	1.15	0.66	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

## DFN1006-3L-A Tape Leader and Trailer



## DFN1006-3L-A Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
10000 pcs	7 inch	100,000 pcs	203×203×195	400,000 pcs	438×438×220	

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