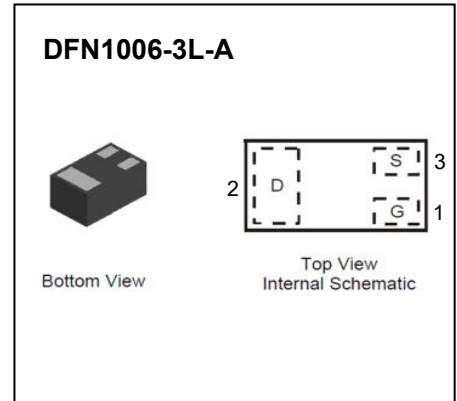




DFN1006-3L-A Plastic-Encapsulate MOSFETs

BB3139K 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	



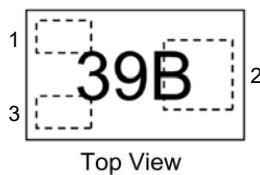
FEATURE

- 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

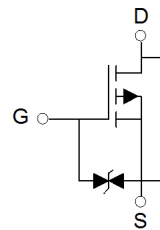
APPLICATION

- 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}	±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	275	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	455	$^\circ\text{C}/\text{W}$
Operation Junction and Storage Temperature Range	T_J, 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

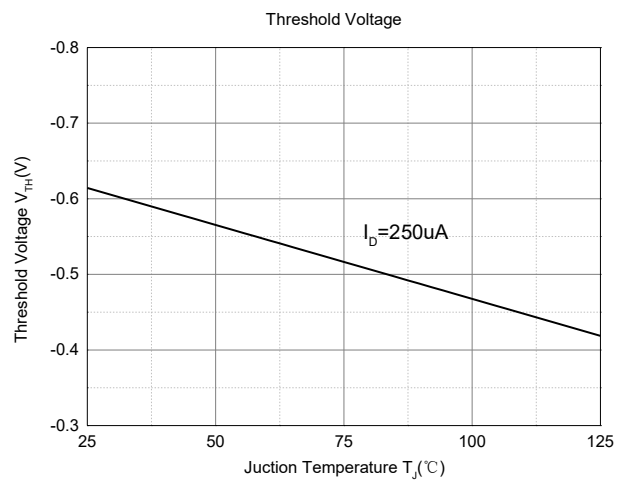
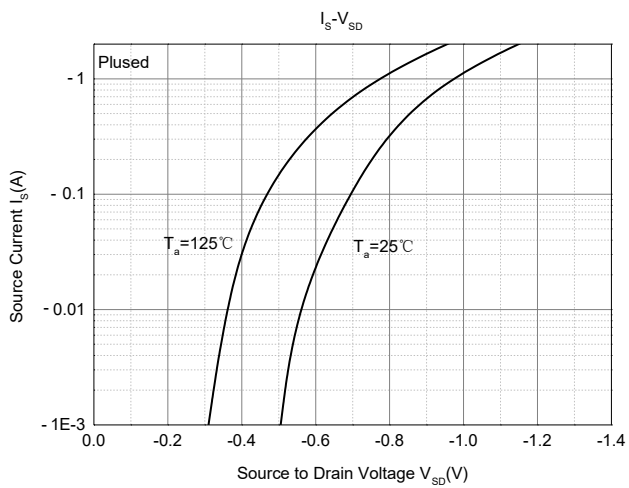
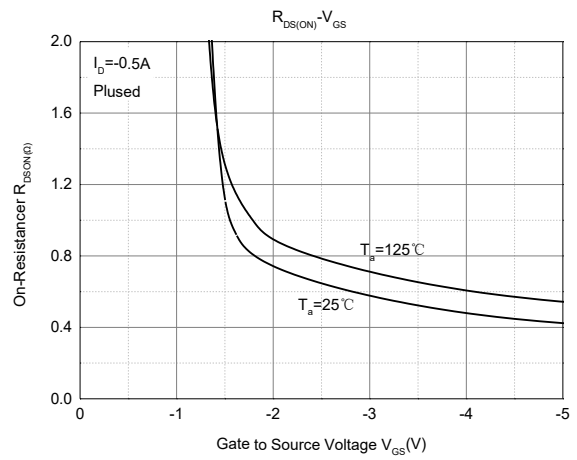
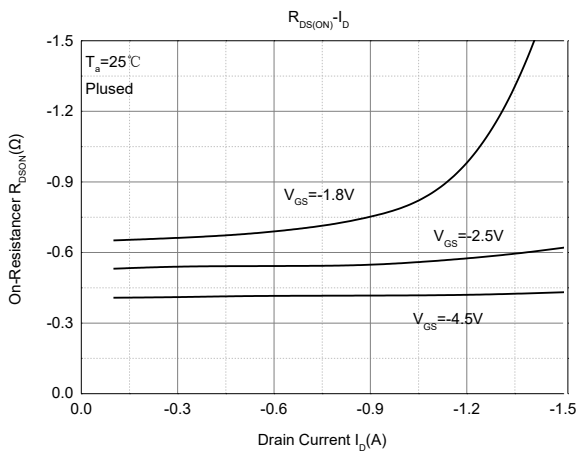
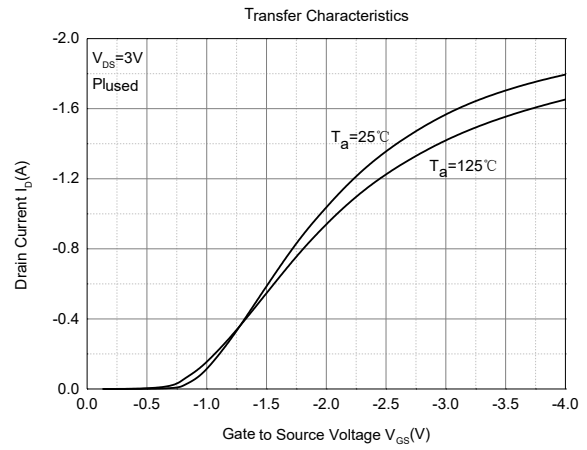
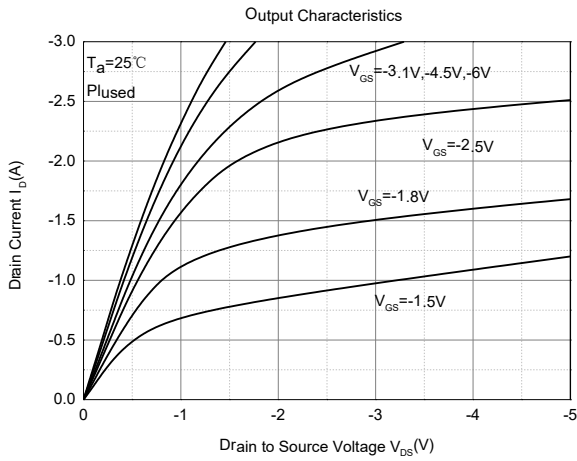
$T_a=25^{\circ}\text{C}$ unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 20	μA
Gate threshold voltage (note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-0.61	-1.1	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$		450	520	$m\Omega$
		$V_{GS} = -2.5V, I_D = -0.8A$		650	780	$m\Omega$
		$V_{GS} = -1.8V, I_D = -0.5A$		950		$m\Omega$
Forward tranconductance(note 2)	g_{FS}	$V_{DS} = -10V, I_D = -0.54A$		1.2		S
Diode forward voltage	V_{SD}	$I_S = -0.5A, V_{GS} = 0V$			-1.2	V
DYNAMIC PARAMETERS(note 4)						
Input Capacitance	C_{iss}	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$		113		μF
Output Capacitance	C_{oss}			15		μF
Reverse Transfer Capacitance	C_{rss}			9		μF
SWITCHING PARAMETERS (note 4)						
Turn-on delay time (note 3)	$t_{d(on)}$	$V_{DD} = -4.5V, V_{GS} = -10V,$ $I_D = -200mA, R_{GEN} = 10\Omega$		9		ns
Turn-on rise time (note 3)	t_r			5.7		ns
Turn-off delay time (note 3)	$t_{d(off)}$			32.6		ns
Turn-off fall time (note 3)	t_f			20.3		ns

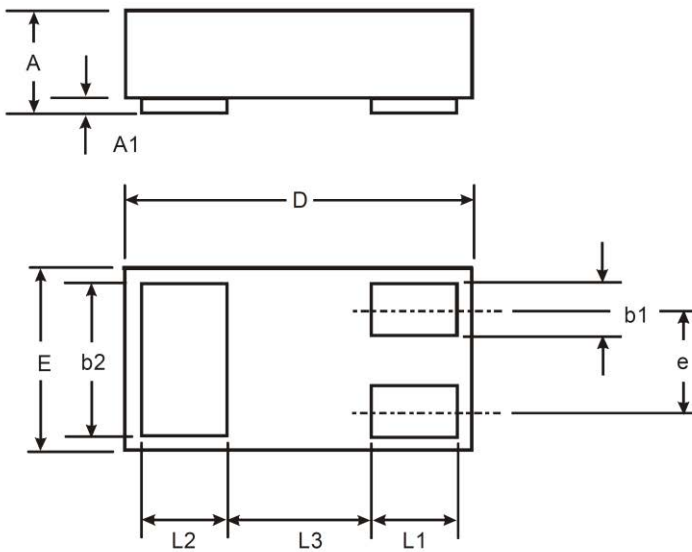
Notes:

1. Surface mounted on FR4 board using 1 square inch pad size, 1oz copper.
2. Pulse Test : Pulse Width=300 μs , Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

Typical Characteristics

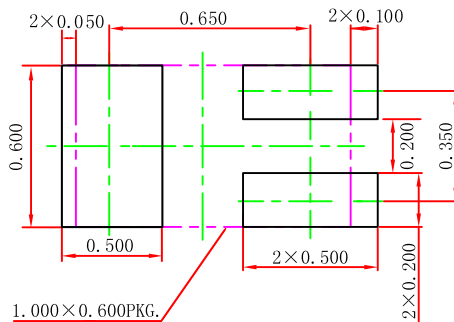


DFN1006-3L-A Package Outline Dimensions



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

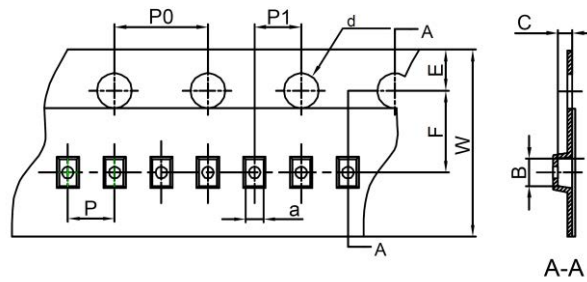


Note:

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

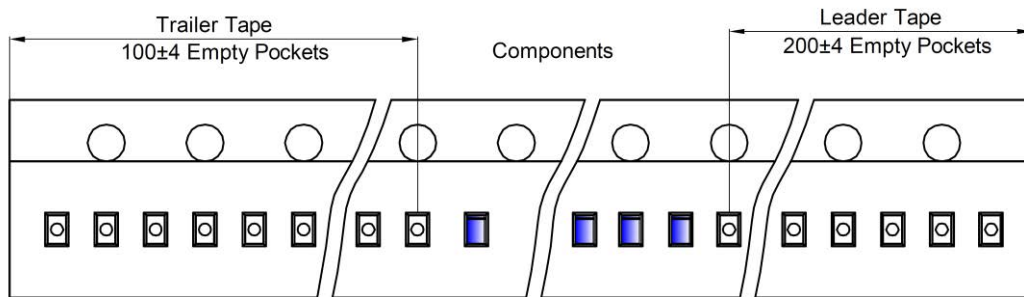
DFN1006-3L-A Tape and Reel

DFN1006-3L-A Embossed Carrier Tape

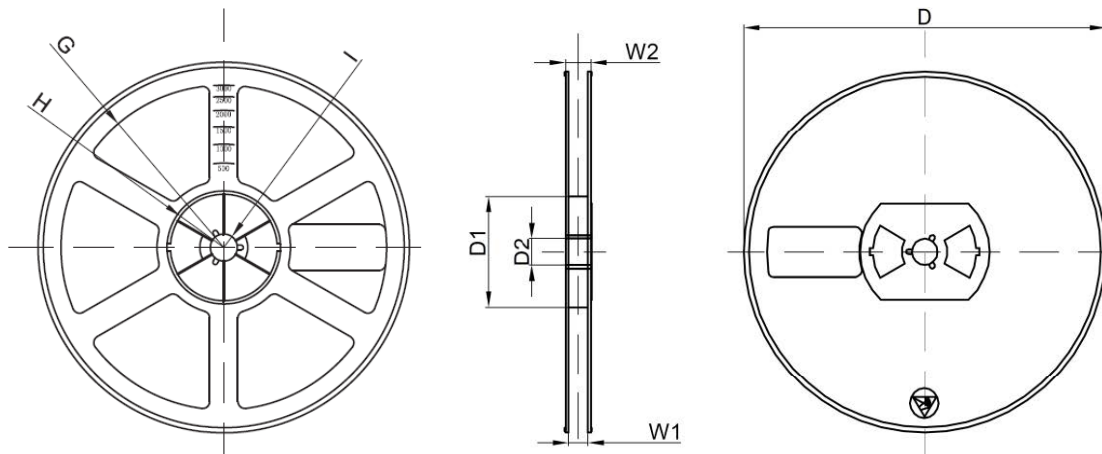


Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFN1006-3L-A	0.66	1.15	0.66	Ø1.50	1.75	3.50	4.00	2.00	2.00	8.00

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	