JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

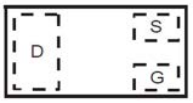
DFN1006-3L Plastic-Encapsulate MOSFETs

CJBA3144K N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
30V	500mΩ@4.5V	0.6A
	600mΩ@2.5V	

DFN1006-3L

Bottom View



Top View
Internal Schematic

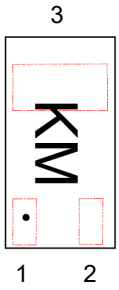
FEATURE

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

APPLICATION

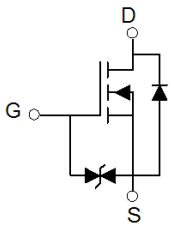
- Load/ Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

MARKING:



Top View
KM = Device code
Solid dot = Pin 1indicator

Equivalent Circuit



MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	0.6	A
Pulsed Drain Current	I_{DM}①	2.4	A
Power Dissipation	P_D	275	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$③	455	℃/W
Operating Junction and Storage Temperature Range	T_J ,T_{STG}	-55~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_J=25℃ unless otherwise specified

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA		30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V, V_{GS} =0V	T_J =25℃	-	-	1.0	μA
			T_J =125℃	-	-	100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±10V		-	-	±3	μA
On characteristics ②							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA		0.5	0.95	1.5	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.6A		-	290	500	mΩ
		V_{GS} =2.5V, I_D =0.3A		-	360	600	mΩ
Forward tranconductance	g_{FS}	V_{DS} =5V, I_D =0.5A		0.1	-	-	S
Dynamic characteristics							
Input capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V, f =1MHz		-	42	-	pF
Output capacitance	C_{oss}			-	9	-	
Reverse transfer capacitance	C_{rss}			-	4.7	-	
Gate resistance	R_g	f =1MHz		-	2.0	-	Ω
Switching characteristics							
Total gate charge	Q_g	V_{GS}=4.5V, V_{DD}=15V, I_D=0.6A		-	0.9	-	nC
Gate-source charge	Q_{gs}			-	0.4	-	
Gate-drain charge	Q_{gd}			-	0.2	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=6.5V, I_D=0.7A , Rg=51Ω		-	2.1	-	ns
Turn-on rise time	t_r			-	2.9	-	
Turn-off delay time	$t_{d(off)}$			-	13.8	-	
Turn-off fall time	t_f			-	7.7	-	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ②	V_{GS} =0V, I_S=0.15A		0.5	-	1.2	V
Continuous drain-source diode forward current	I_S			-	-	0.6	A
Pulsed drain-source diode forward current	I_{SM} ②			-	-	2.4	A

Notes:

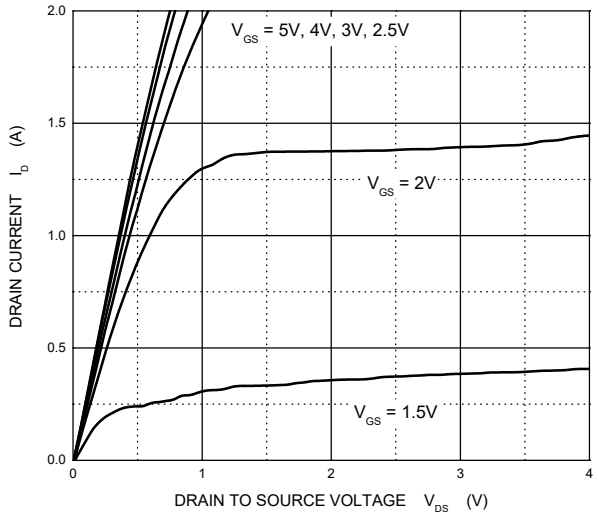
1.Limited only by maximum temperature allowed.

2.Pulse Test : Pulse Width≤380μs, duty cycle ≤2%.

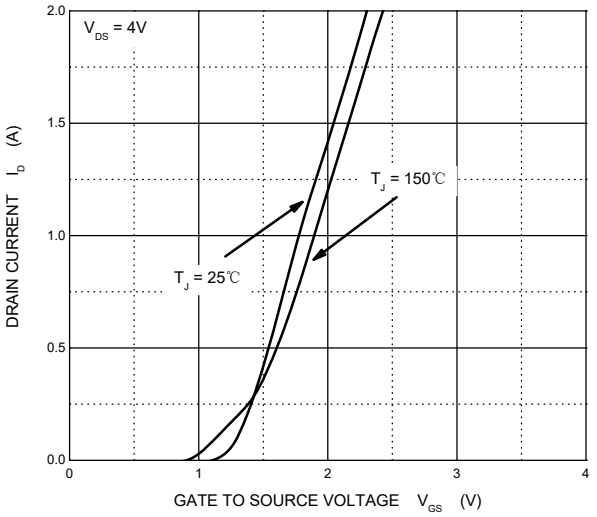
3.Surface mounted on FR4 board using 1 square inch pad size, 1oz copper.

Typical Characteristics (T_J = 25℃, unless otherwise specified)

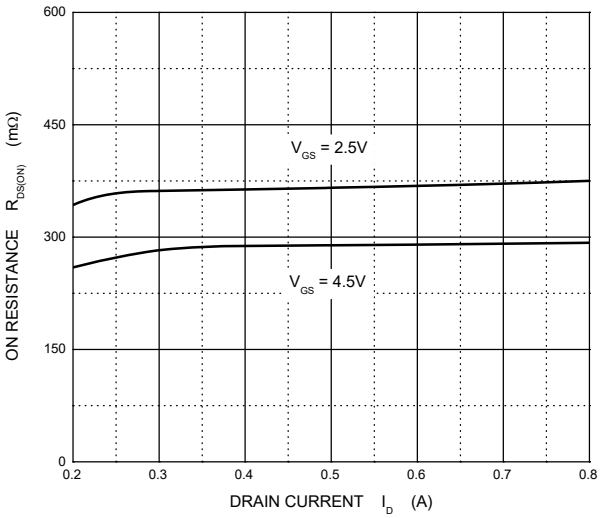
Output Characteristics



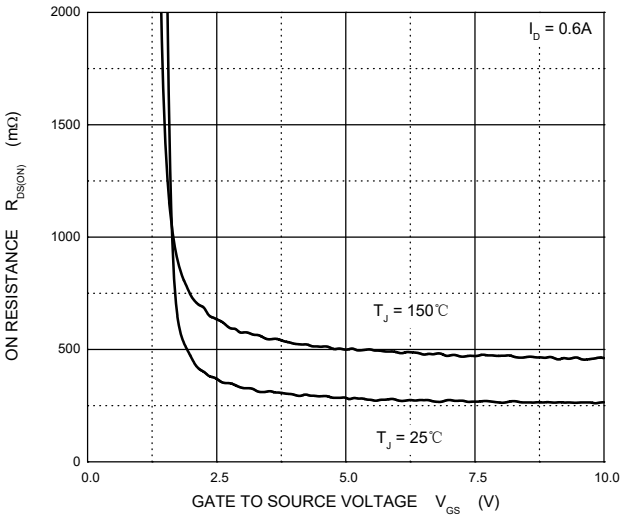
Transfer Characteristics



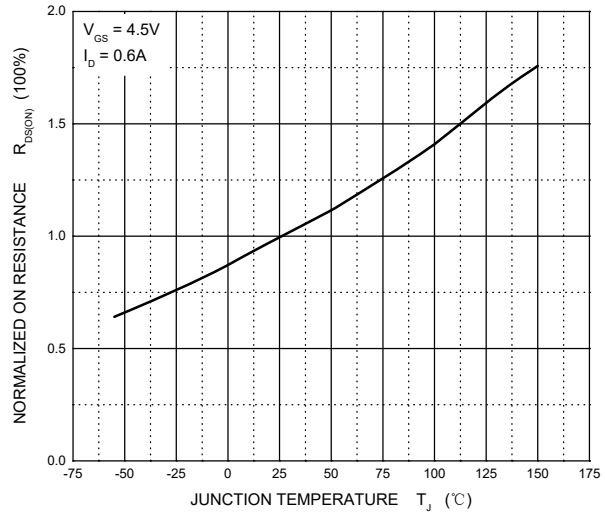
On Resistance vs. Drain Current



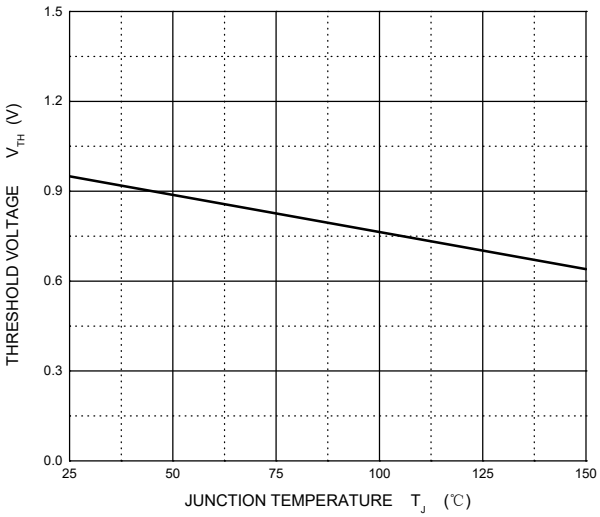
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

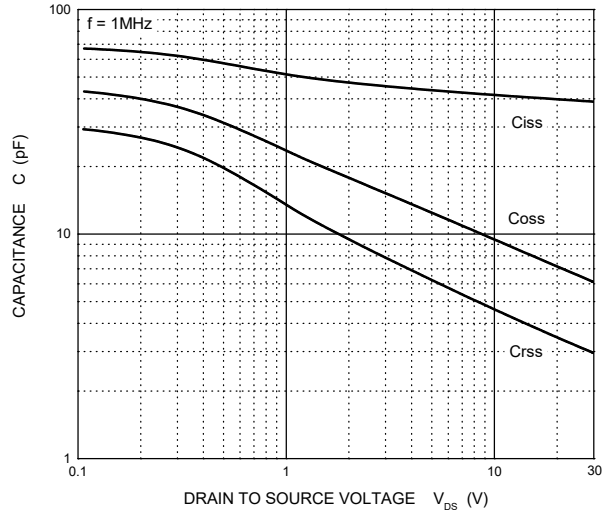


Gate-Source Threshold Voltage

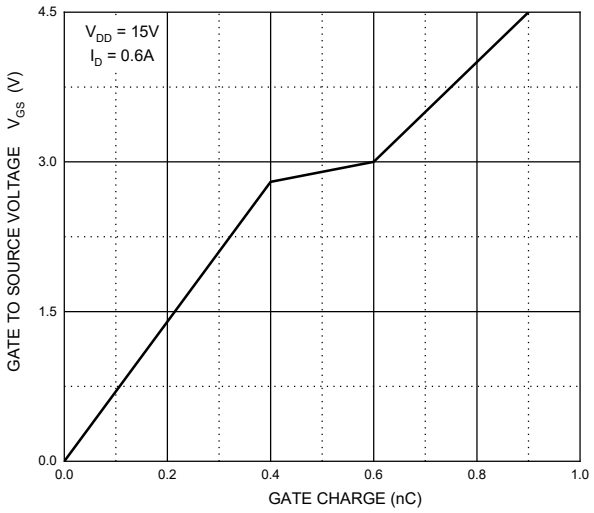


Typical Characteristics (T_J = 25℃, unless otherwise specified)

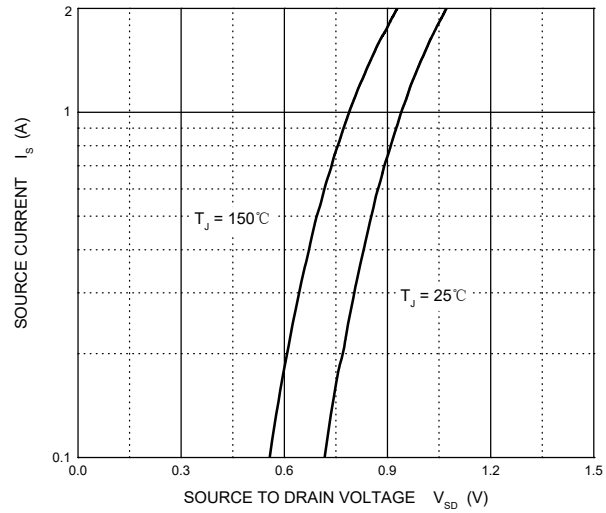
Typical Capacitances



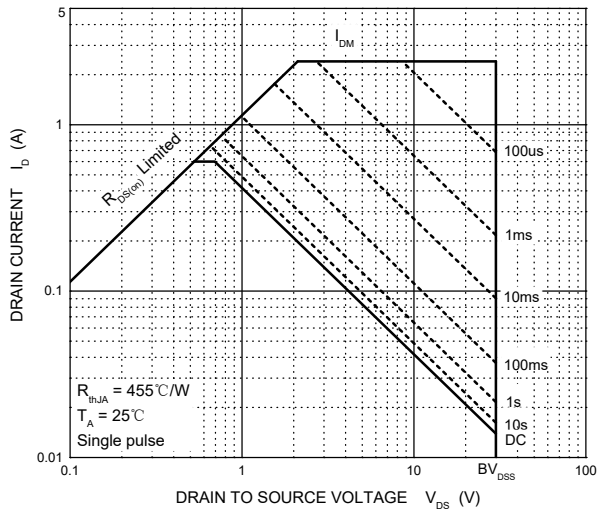
Gate Charge



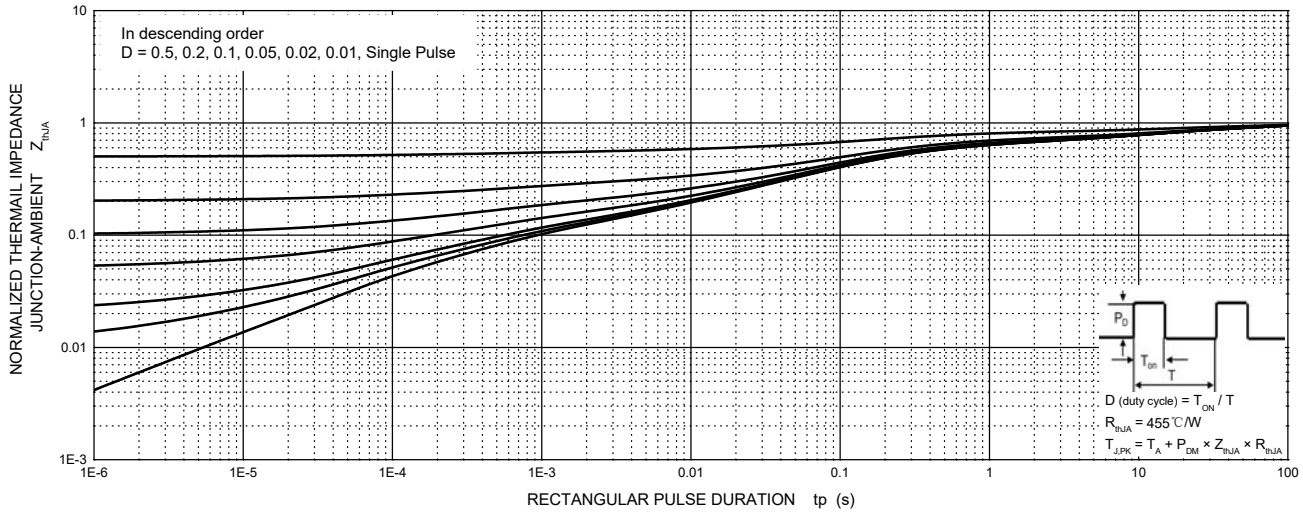
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

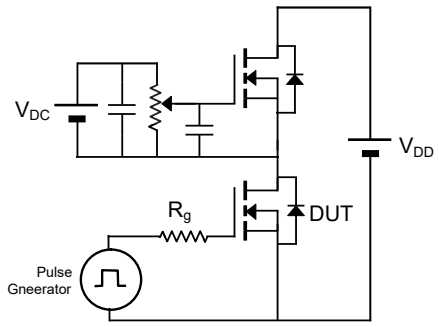


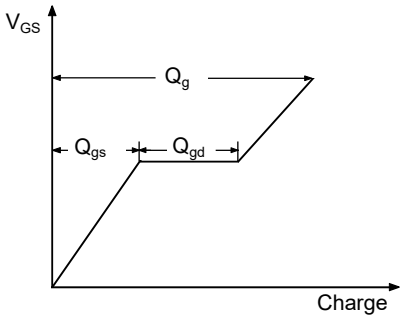
Transient Thermal Impedance, Junction-Ambient



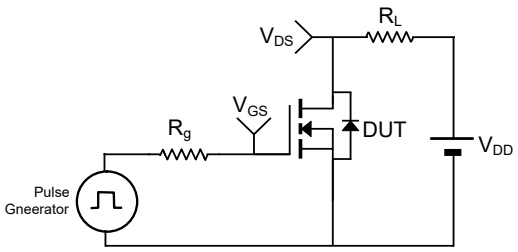
TEST CIRCUIT AND WAVEFOMRS

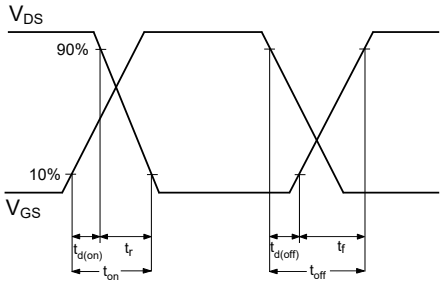
Gate Charge



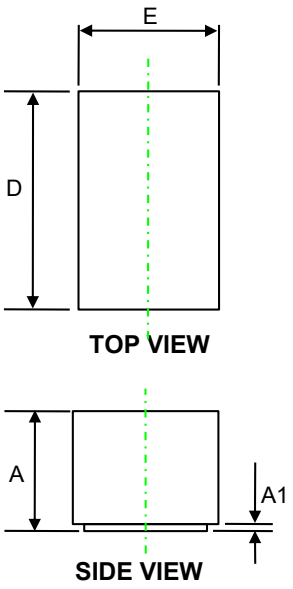


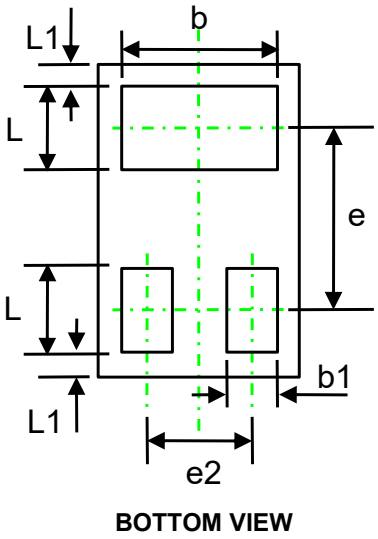
Resistive Load Switching Time





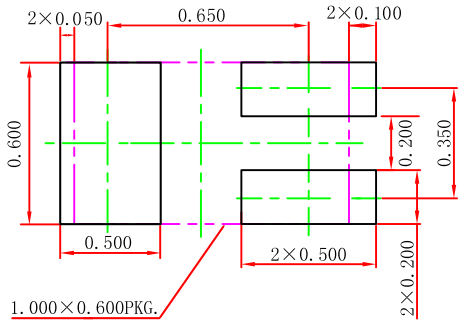
DFN1006-3L Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b	0.450	0.550	0.018	0.022
e	0.650 REF.		0.026 REF.	
e2	0.350 REF.		0.014 REF.	
L1	0.050 REF.		0.002 REF.	
L	0.200	0.300	0.008	0.012
b1	0.100	0.200	0.004	0.008

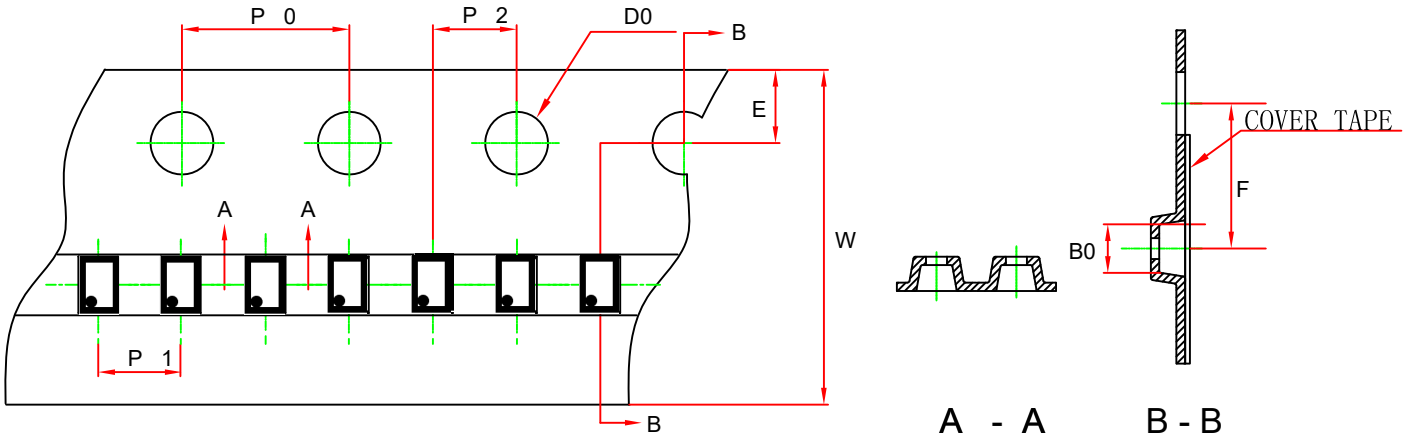
DFN1006-3L Suggested Pad Layout



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

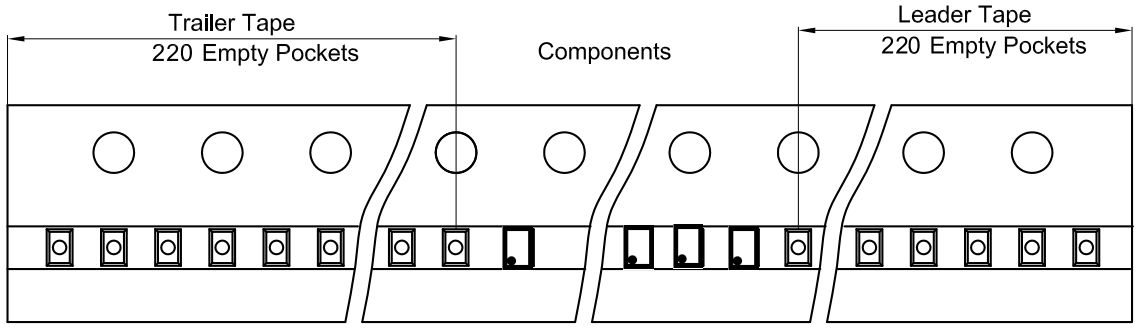
DFN1006-3L Tape and Reel

DFN1006-3L Embossed Carrier Tape

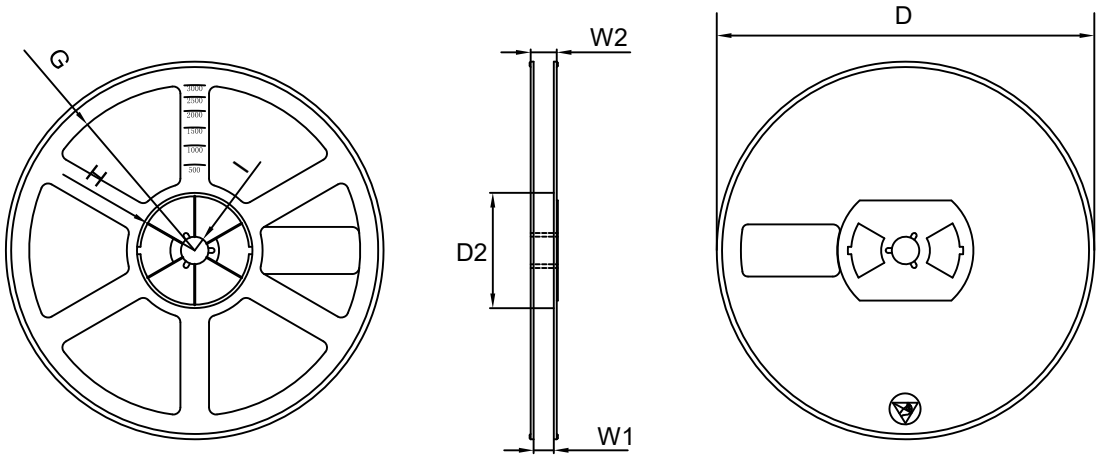


Dimensions In Millimeters (mm)								
Pkg type	B0	P0	P1	P2	E	F	W	D0
DFN1006-3L	1.11	4.00	2.00	2.00	1.75	3.50	8.00	1.55
Tolerance	+/-0.06	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.3	+/-0.1

DFN1006-3L Tape Leader and Trailer



DFN1006-3L Reel



Symbol	Dimensions In Millimeters (mm)						
	D	D2	G	H	I	W1	W2
7" Dia	Φ178.00	54.50	R78.00	R25.6	R6.5	9.50	12.30
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-2	+/-1.5

REEL	Reel Size	Box	Box size(mm)	Carton	Carton Size(mm)
10000 pcs	7 inch	150000 pcs	220×220×210	600000 pcs	450×450×240