SZCJ

Shenzhen Changji Semiconductor Co., LTD.

DFN1006-3L Plastic-Encapsulate MOSFETs

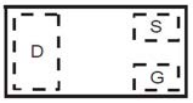
CJBA3144K N-Channel MOSFET

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

DFN1006-3L



Bottom View



Top View
Internal Schematic

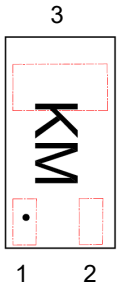
FEATURE

- 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

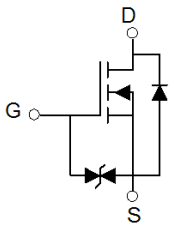
- Load/ Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

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:

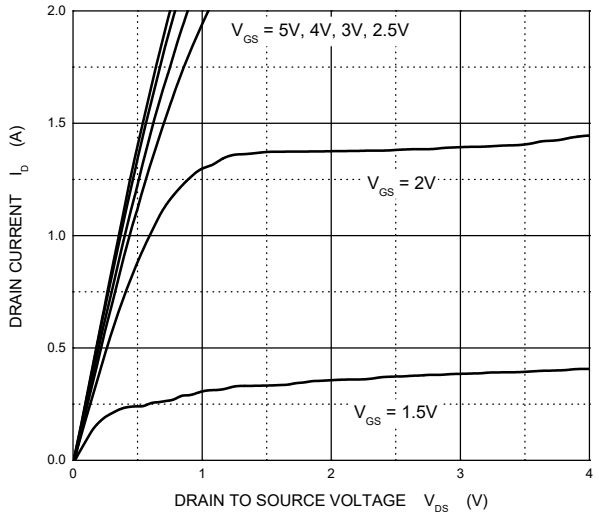
1.Limited only by maximum temperature allowed.

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

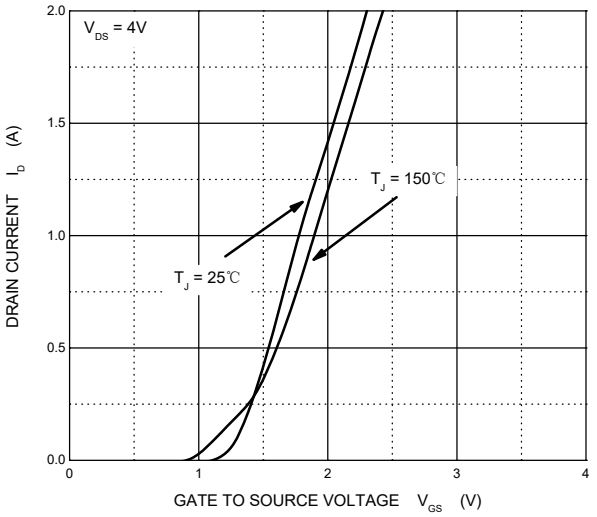
3.Surface mounted on FR4 board using 1 square inch pad size, 1oz copper.

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

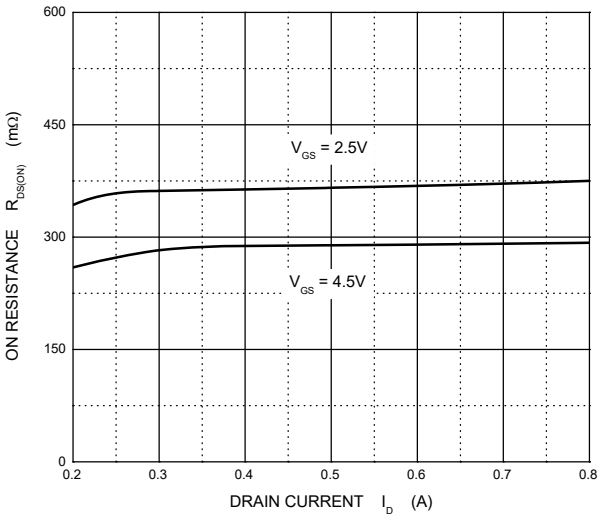
Output Characteristics



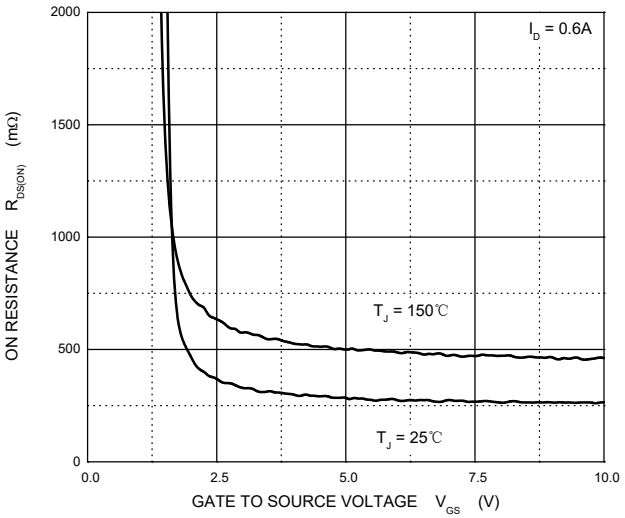
Transfer Characteristics



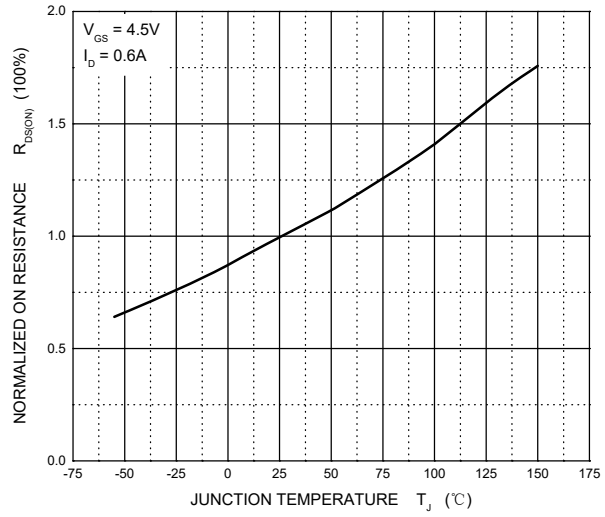
On Resistance vs. Drain Current



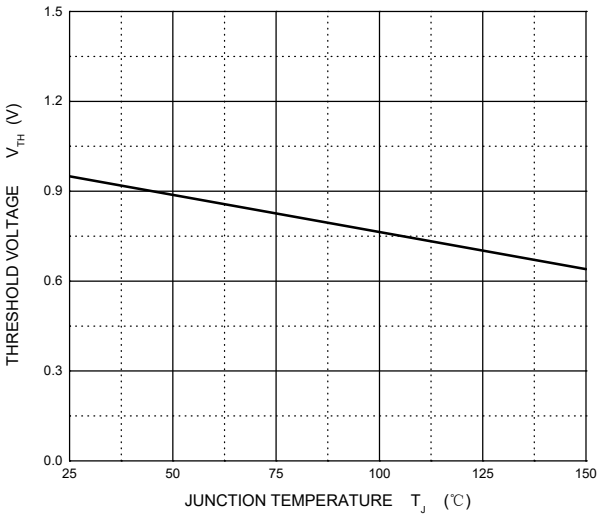
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

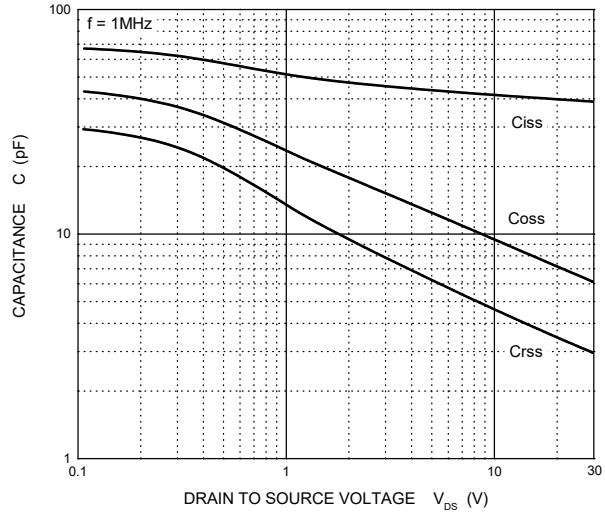


Gate-Source Threshold Voltage

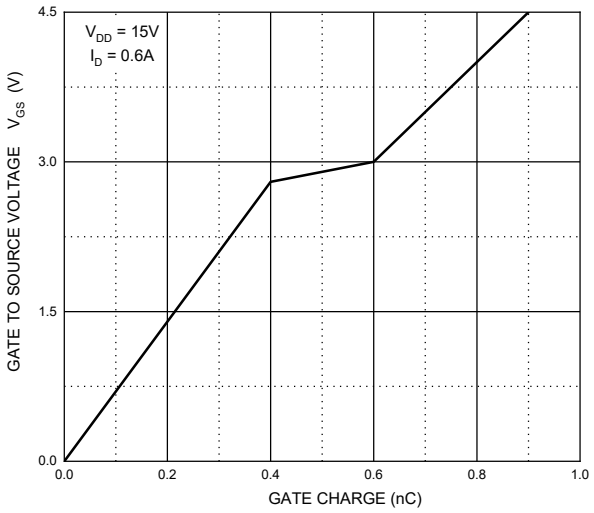


Typical Characteristics (T_J = 25℃, unless otherwise specified)

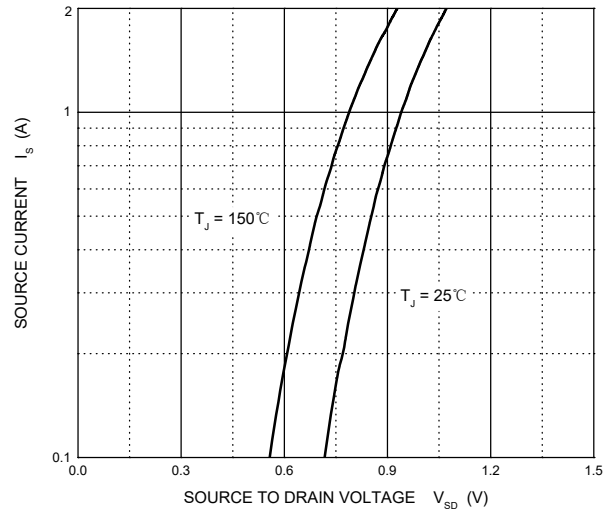
Typical Capacitances



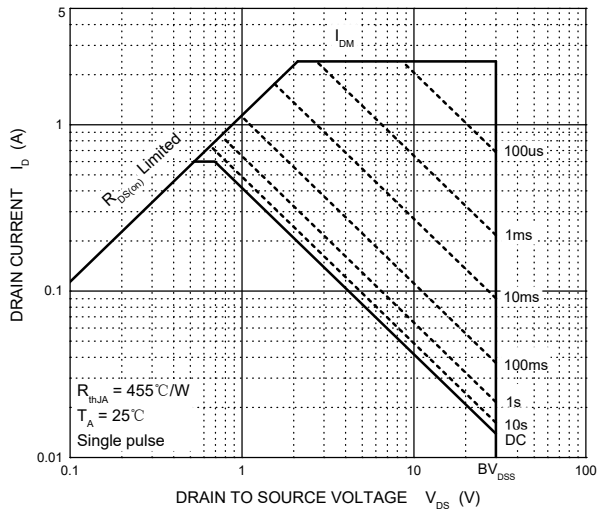
Gate Charge



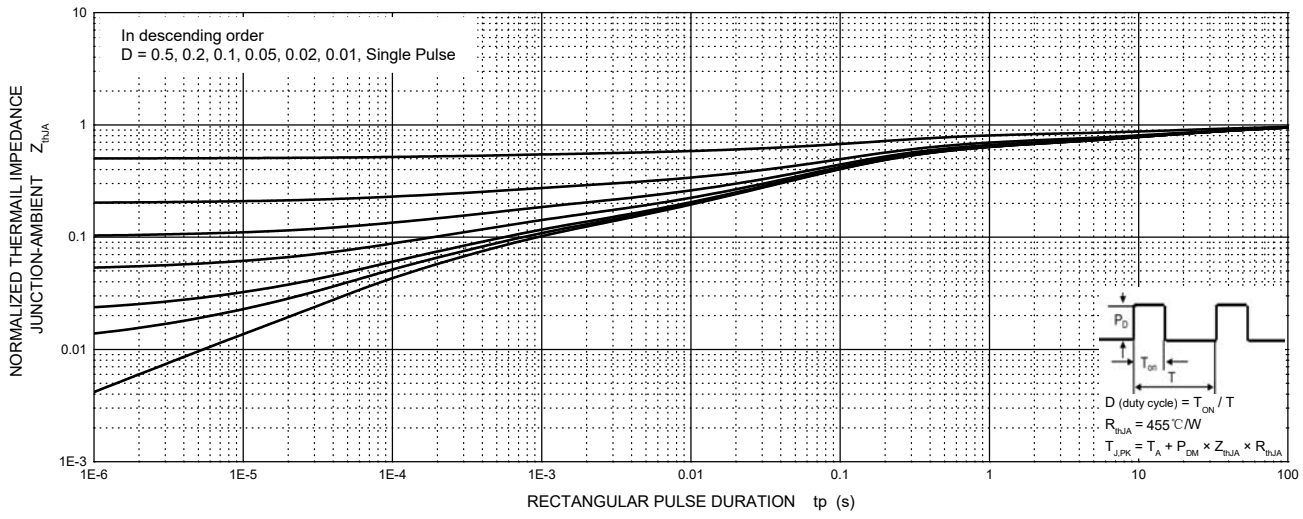
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

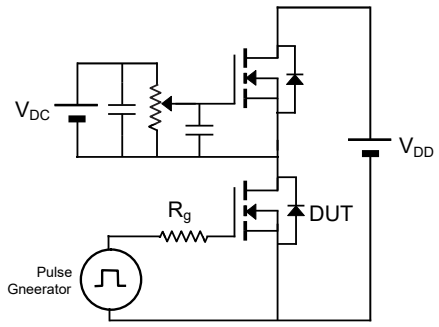


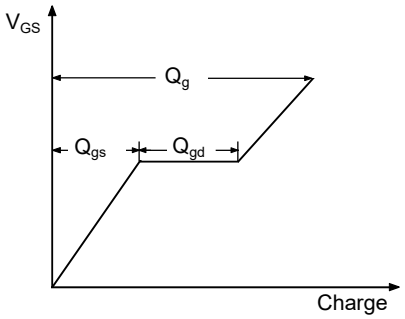
Transient Thermal Impedance, Junction-Ambient



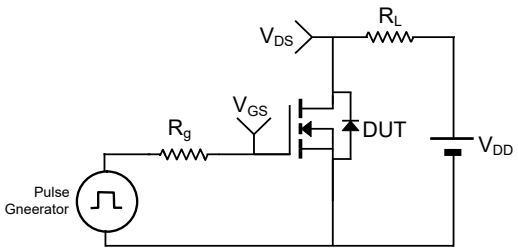
TEST CIRCUIT AND WAVEFOMRS

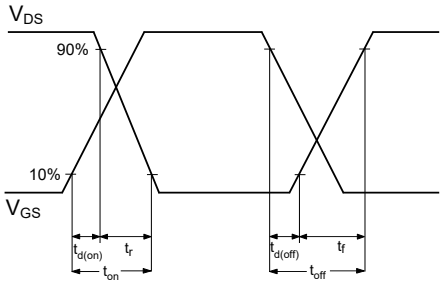
Gate Charge



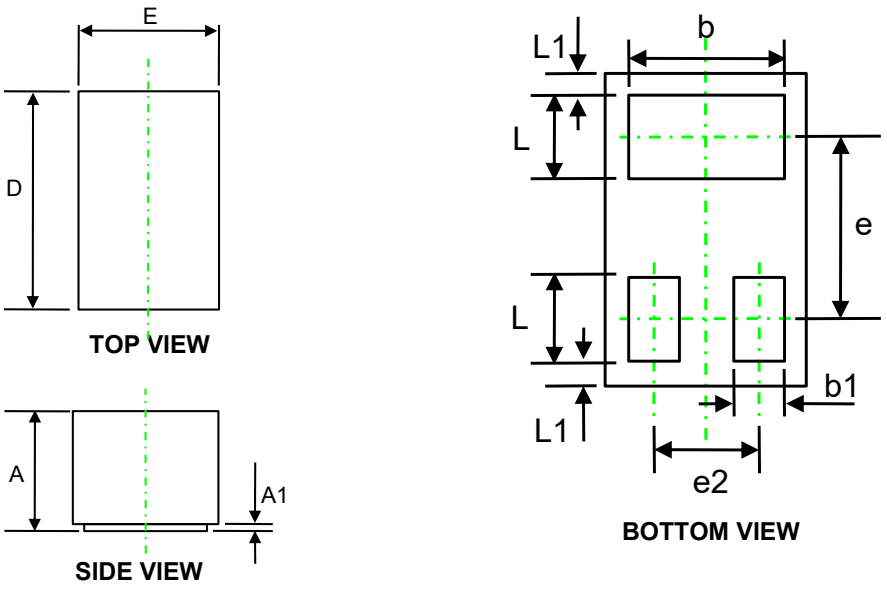


Resistive Load Switching Time



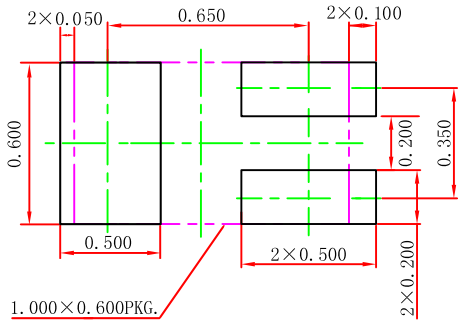


DFN1006-3L Package Outline Dimensions



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



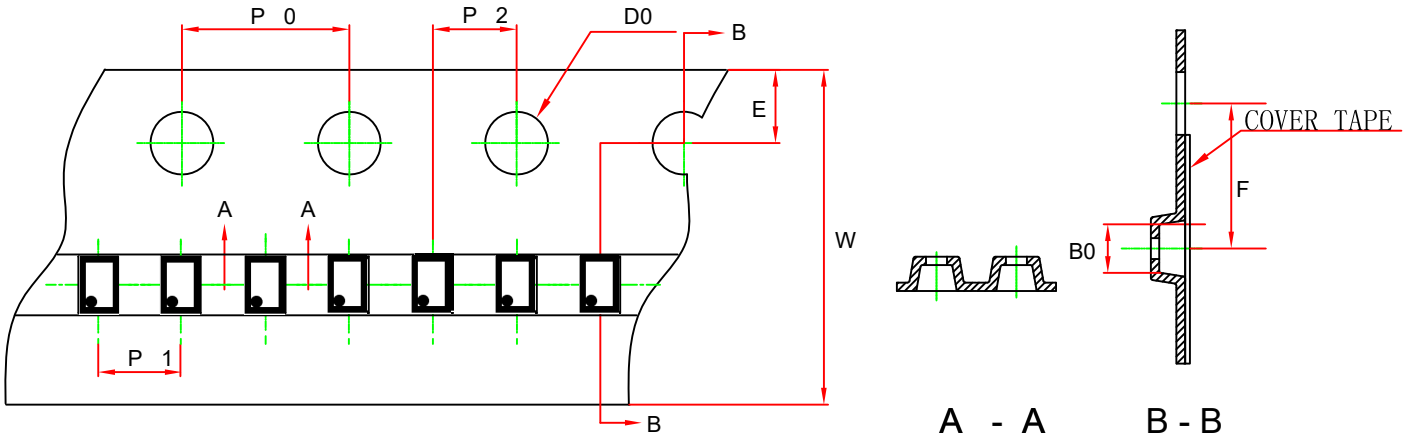
Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.050mm.
3.The pad layout is for reference purposes only.

NOTICE

SZCJ reserves the right to make modifications,enhan nts,improvements,corrections or other es without further notice to any product herein. SZCJ does not assume any liability arising out of the application or use of any product described h

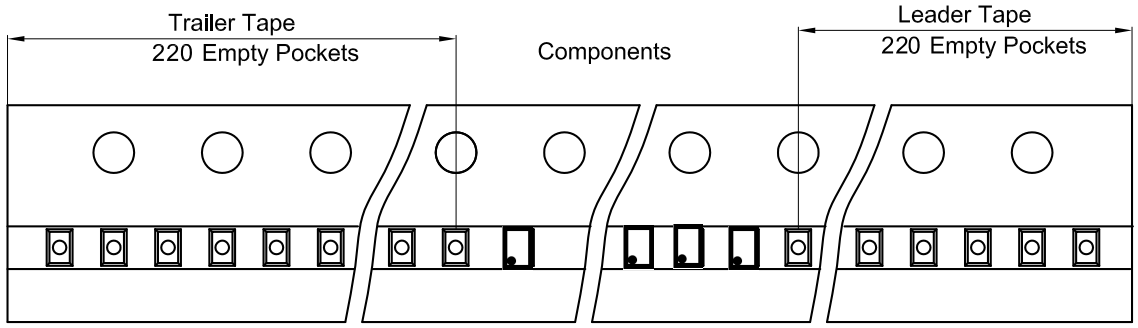
DFN1006-3L Tape and Reel

DFN1006-3L Embossed Carrier Tape

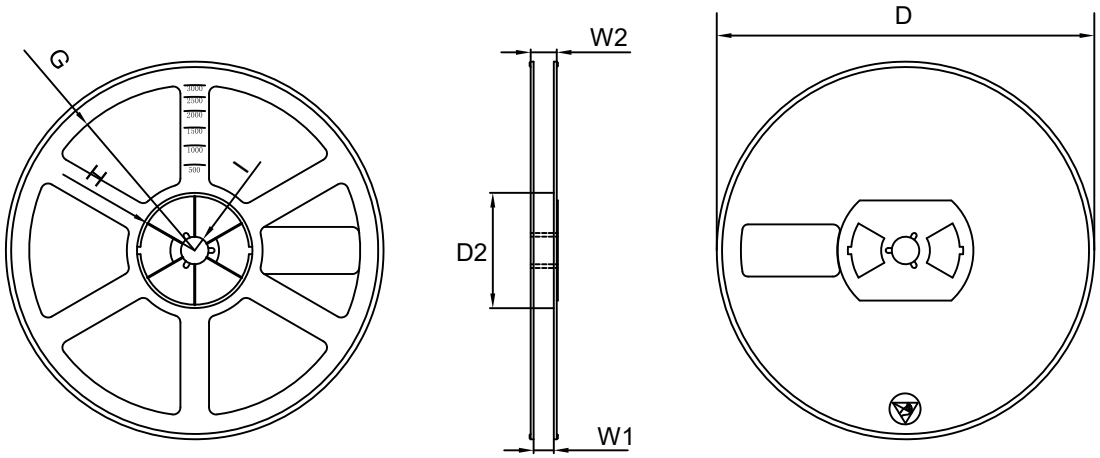


Dimensions In Millimeters (mm)								
Pkg type	B0	P0	P1	P2	E	F	W	D0
DFN1006-3L	1.11	4.00	2.00	2.00	1.75	3.50	8.00	1.55
Tolerance	+/-0.06	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.3	+/-0.1

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