SZCJ

DFNWB2x2-6L Plastic-Encapsulate MOSFET

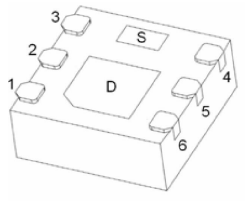
CJMP3009G P-Channel MOSFET

Key Performance Parameters

$V_{BR(DSS)}$	$R_{DS(on)}$TYP	I_D
-30V	19mΩ@-10V	-9A
	27mΩ@-4.5V	

DFNWB2x2-6L

1. DRAIN
2. DRAIN
3. GATE
4. SOURCE
5. DRAIN
6. DRAIN



DESCRIPTION

The P-Channel enhancement mode power field effect transistor uses advanced trench technology to provide excellent $R_{DS(on)}$ with low gate charge. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- Battery switch
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$

APPLICATIONS

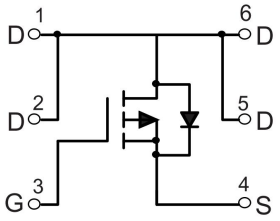
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING



XXXXX = P3009G
Solid dot = Pin 1 indicator
YY = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A =25℃	I_D⑤	-9	A
	T_A =75℃		-7	
Pulsed Drain Current		I_{DM}①②	-36	A
Avalanche Current		I_{AS}③	-15	A
Single Pulsed Avalanche Energy		E_{AS}③	56	mJ
Power Dissipation		P_D①⑥	3.1	W
Operating Junction and Storage Temperature Range		T_J,T_{stg}	-55~+150	℃

Thermal Characteristics

Parameter		Symbol	Value		Unit
			Typ	Max	
Thermal Resistance from Junction to Ambient	t≤10s	$R_{\theta JA}$⑥	30	40	℃/W
	Steady State		60	80	℃/W

Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Static Characteristics

Parameter	Symbol	Test Condition		Value			Unit
				Min	Typ	Max	
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_{GS}=±20V, V_{DS}=0V		-	-	±100	nA
Gate-threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA		-1.0	-1.5	-3.0	V
Static drain-source on-sate resistance	$R_{DS(on)}$④	V_{GS}=-10V, I_D=-9A	T_J=25℃	-	19	25	mΩ
			T_J=125℃	-	27	36	
		V_{GS}=-4.5V, I_D=-6A		-	27	35	
Forward tranconductance	g_{FS}	V_{DS}=-5V, I_D=-9A		-	12	-	S

Dynamic Characteristics⑤

Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz	-	1135	-	pF
Output capacitance	C_{oss}		-	160	-	
Reverse transfer capacitance	C_{rss}		-	139	-	
Gate resistance	R_g	f=1MHz	-	7.0	-	Ω
Total gate charge	Q_g	V_{GS}=-4.5V, V_{DS}=-6V, I_D=-9A	-	9.6	-	nC
Gate charge at threshold	$Q_{G(th)}$		-	1.9	-	
Gate-source charge	Q_{gs}		-	3.7	-	
Gate-drain charge	Q_{gd}		-	2.2	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V, V_{GS}=-4.5V, I_D=-1A, R_g=1Ω	-	5.8	-	ns
Turn-on rise time	t_r		-	6.5	-	
Turn-off delay time	$t_{d(off)}$		-	27.2	-	
Turn-off fall time	t_f		-	74.1	-	

Reverse Diode Characteristics

Drain-source diode forward voltage	V_{SD}④	V_{GS}=0V, I_S=-2A	-	-0.75	-1.2	V
Continuous drain-source diode forward current	I_S①		-	-	-9	A
Pulsed drain-source diode forward current	I_{SM}①②		-	-	-36	A
Reverse recovery time	t_{rr}	V_{DD}=-15V, I_S=-9A, di/dt=-100A/μs	-	8.3	-	ns
Reverse recovery charge	Q_{rr}		-	3.6	-	nC

Notes:

①.Limited only by maximum temperature allowed.

②.P_W ≤10μs, Duty cycle ≤1%.

③.EAS condition: V_{DD}=-15V, V_{GS}=-10V, L=0.5mH, R_g=25Ω Starting T_J=25℃.

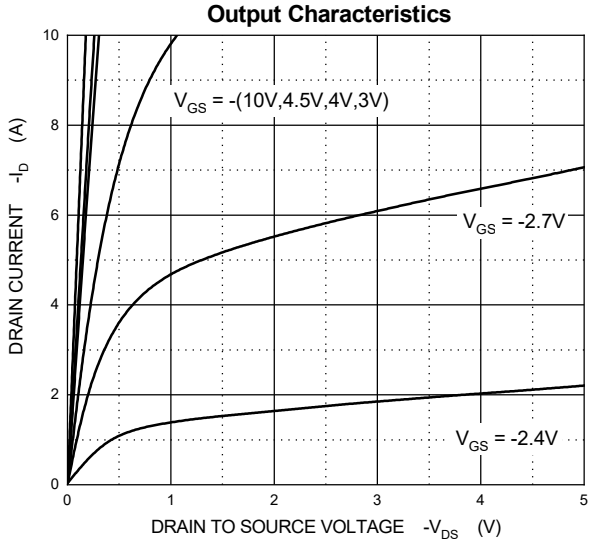
④.Pulse Test : Pulse Width ≤380μs, duty cycle ≤2%.

⑤.Guaranteed by design, not subject to production.

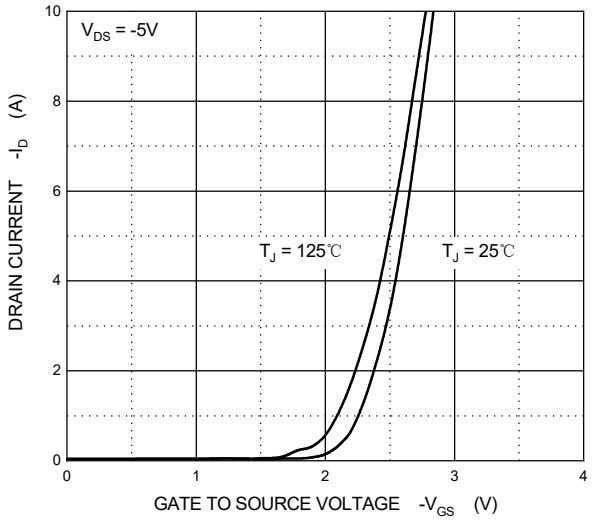
⑥.Device mounted on 1 in^2 FR-4 board with 2oz. double-sided Copper, in a still air environment with T_A=25℃.The current rating is based on the t ≤10s thermal resistance rating.

Typical Characteristics

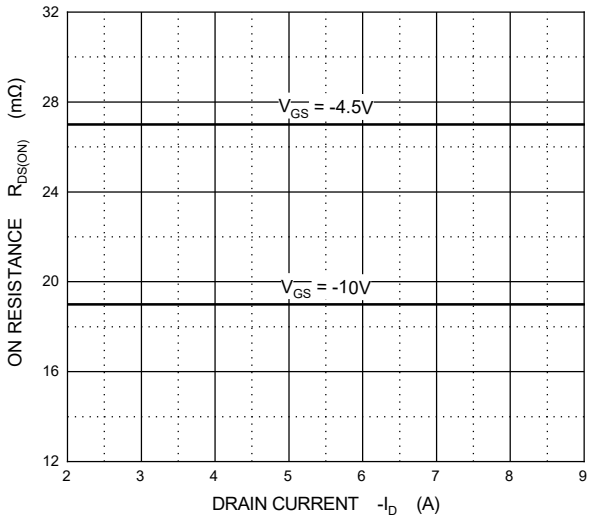
Output Characteristics



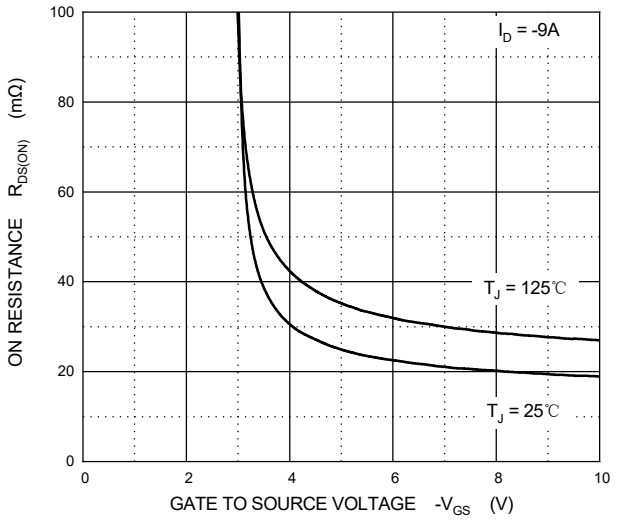
Transfer Characteristics



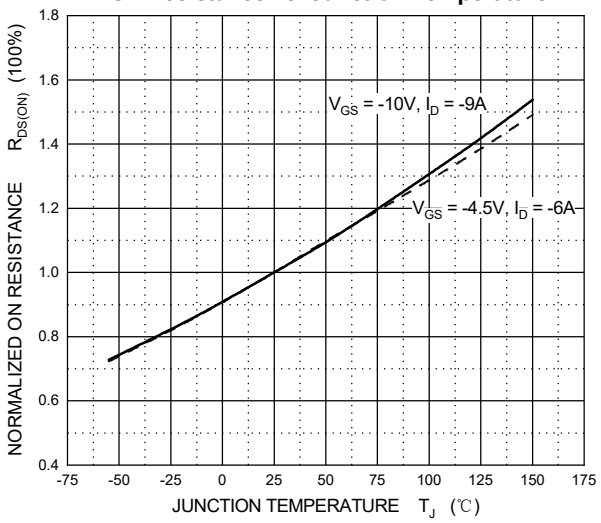
On Resistance vs. Drain Current



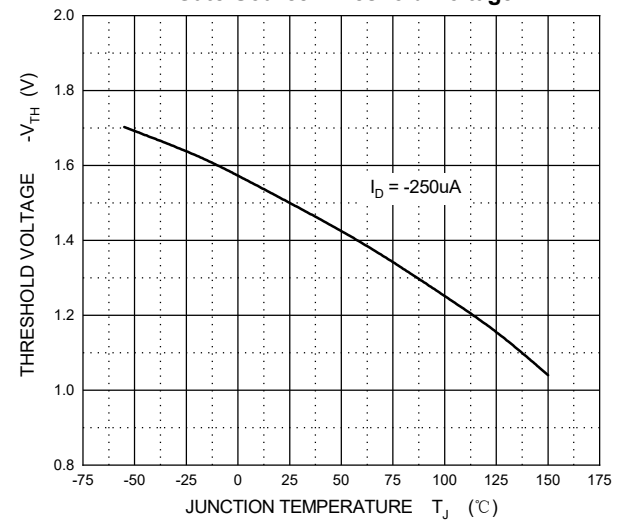
On Resistance vs. Gate-Source Bias



On Resistance vs. Junction Temperature

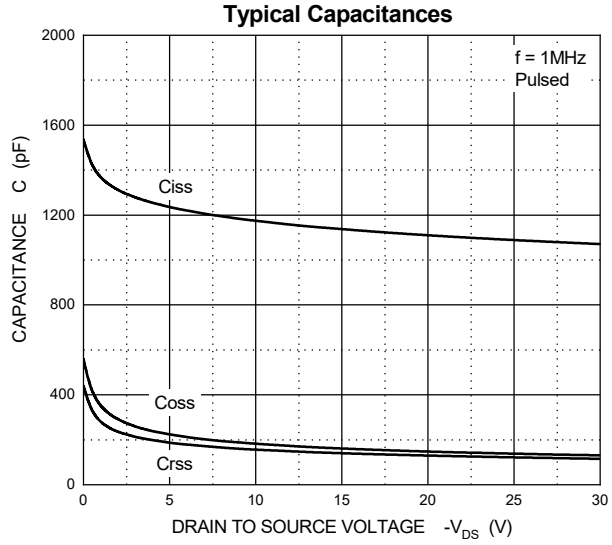


Gate-Source Threshold Voltage

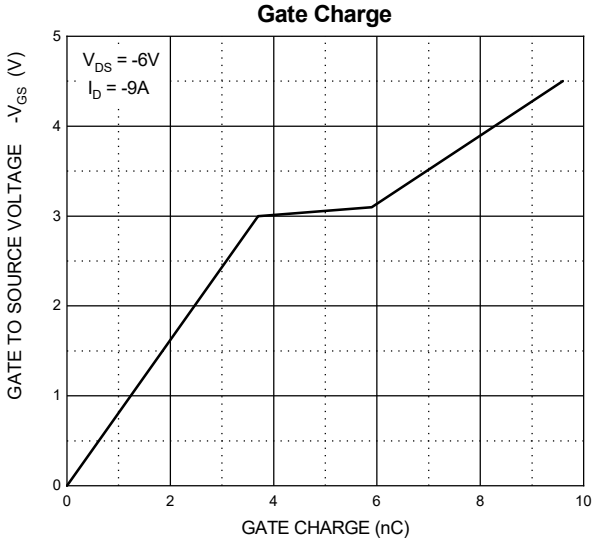


Typical Characteristics

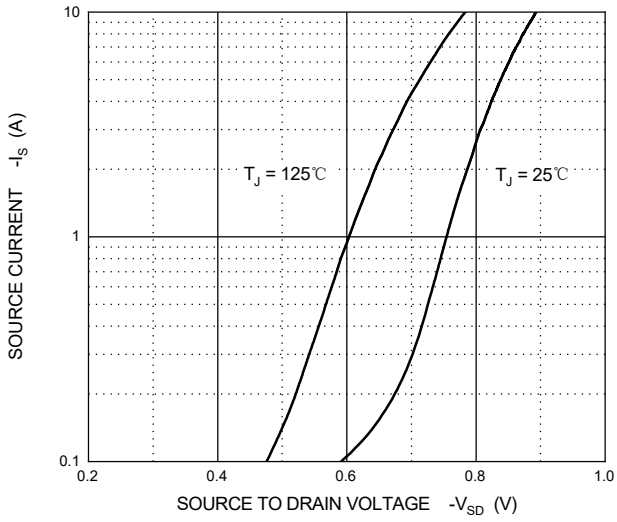
Typical Capacitances



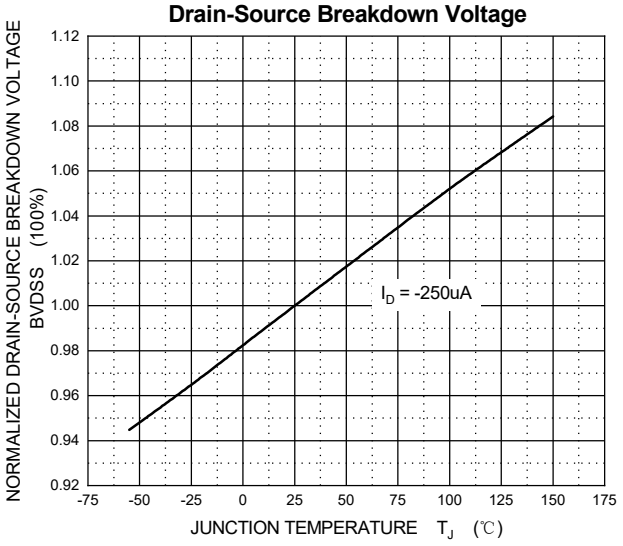
Gate Charge



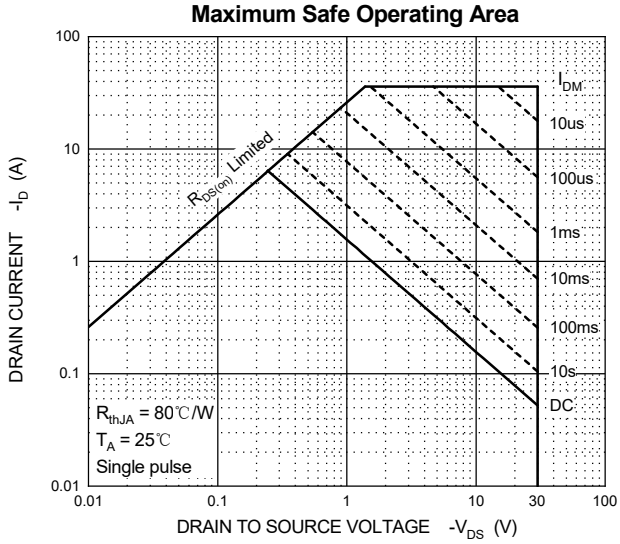
Source-Drain Diode Forward Characteristics



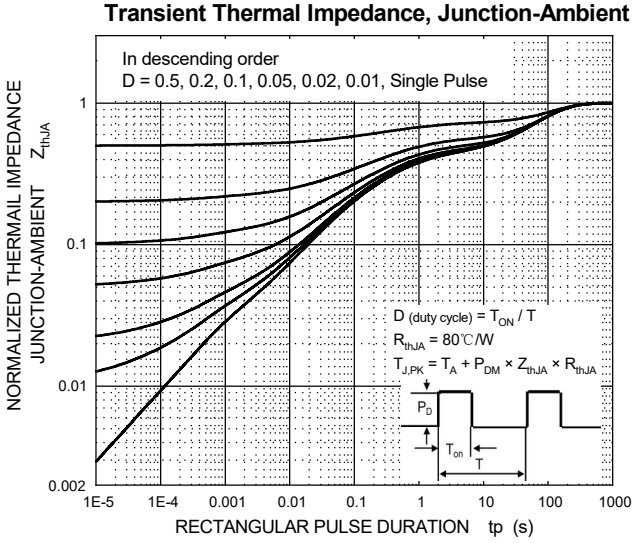
Drain-Source Breakdown Voltage



Maximum Safe Operating Area

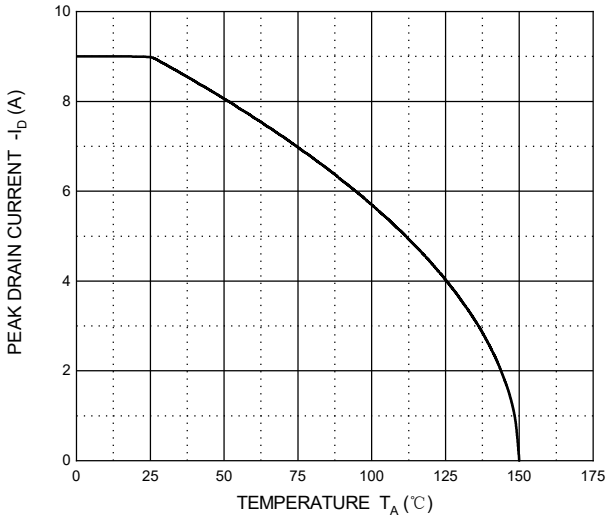


Transient Thermal Impedance, Junction-Ambient

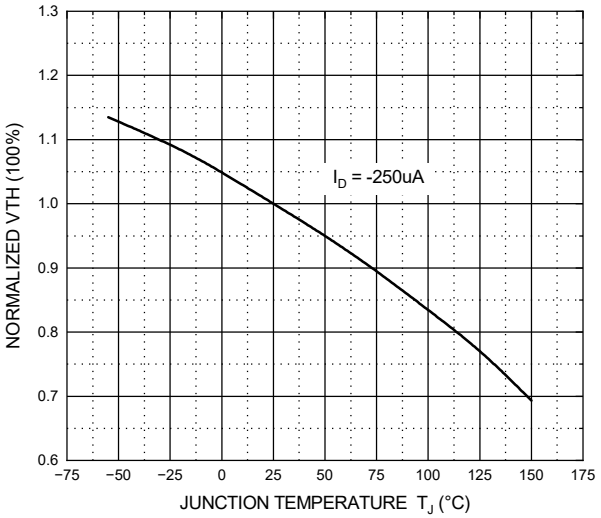


Typical Characteristics

ID vs. TA

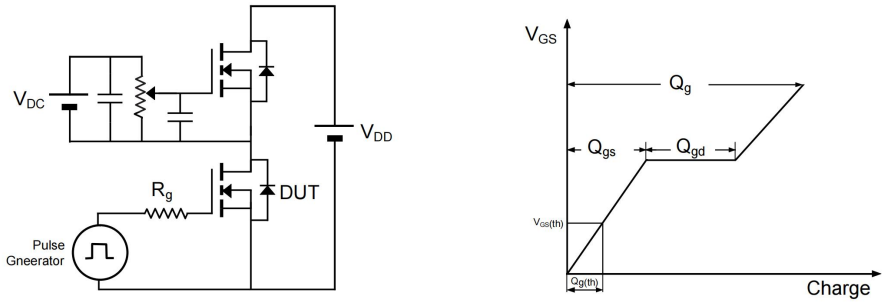


Normalized Threshold Voltage vs. Junction Temperature

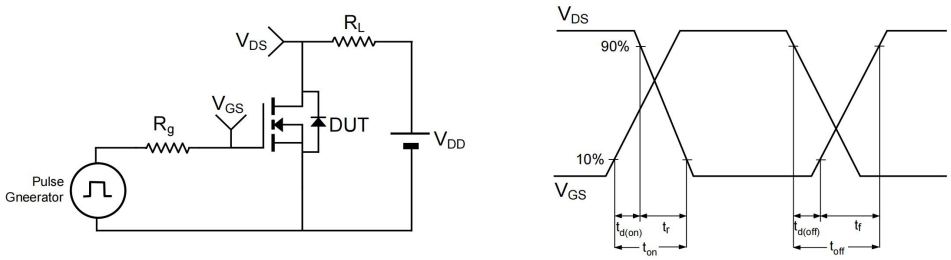


Test Circuit And Waveforms

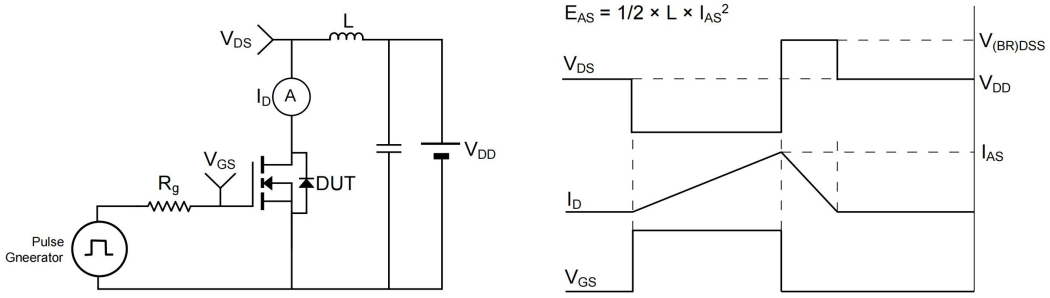
Gate Charge



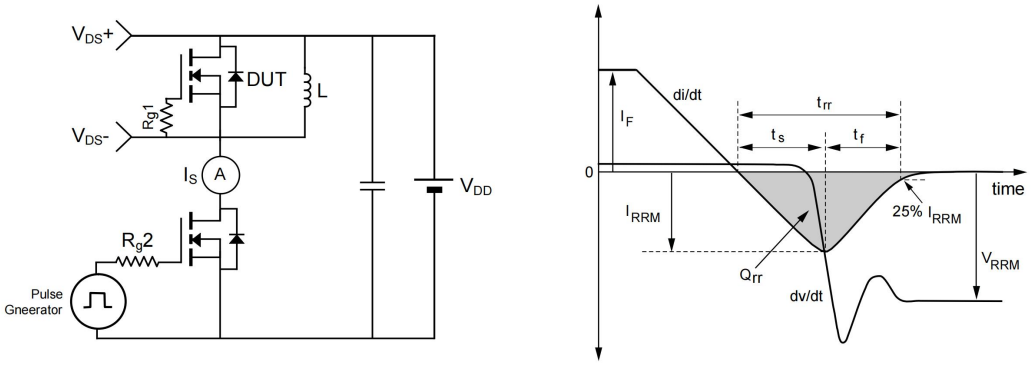
Resistive Load Switching Time



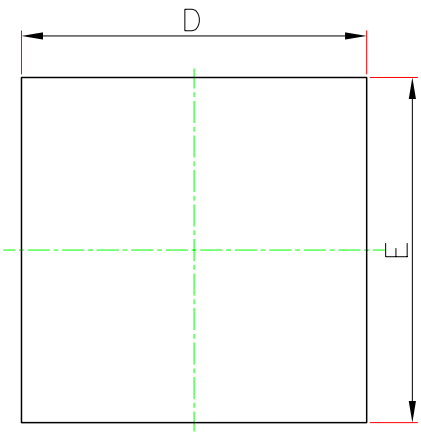
Un-clamped Inductive Load Switching



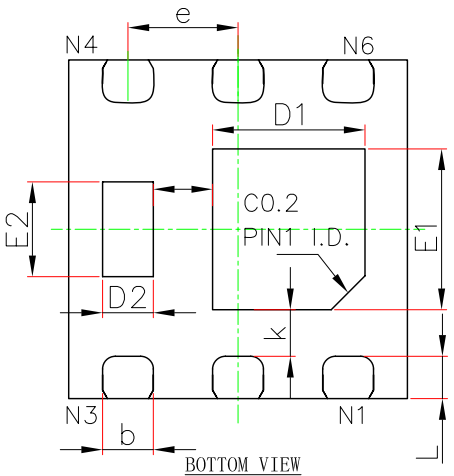
Drain-Source Body Diode Reverse Recovery



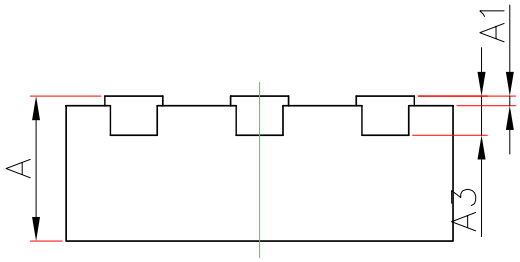
DFNWB2x2-6L Package Outline Dimensions



TOP VIEW
[顶视图]



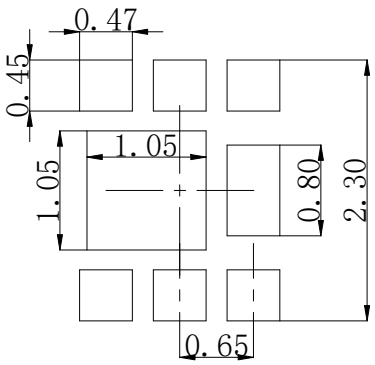
BOTTOM VIEW
[背视图]



SIDE VIEW
[侧视图]

Symbols	Dimensions in Milimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
b	0.250	0.350	0.010	0.014
e	0.650BSC.		0.026BSC.	
k	0.275REF.		0.011REF.	
k1	0.350REF.		0.014REF.	
L	0.174	0.326	0.007	0.013

DFNWB2x2-6L Suggested Pad Layout



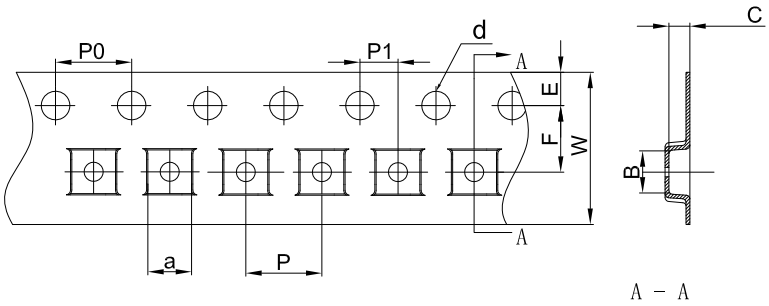
Controlling dimension：in millimeters.

NOTICE

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

DFNWB2×2-6L Tape and Reel

DFNWB2×2-6L Embossed Carrier Tape

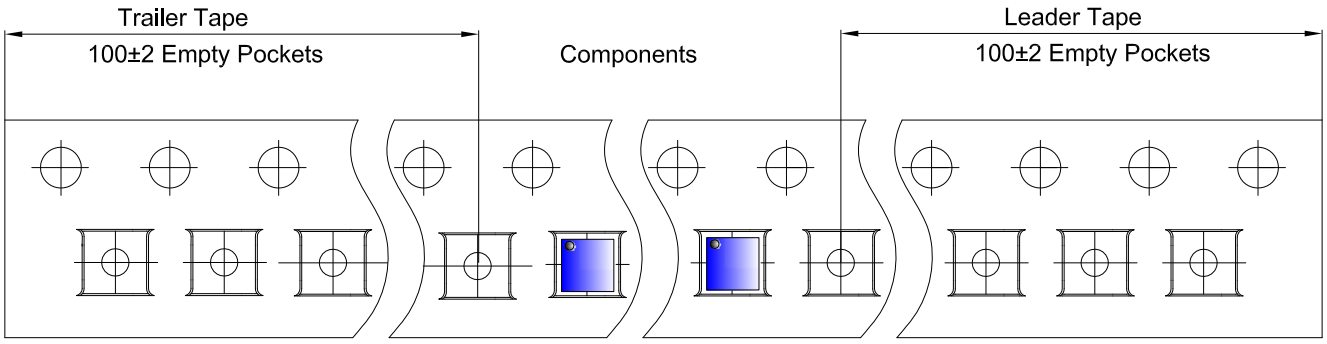


Packaging Description:

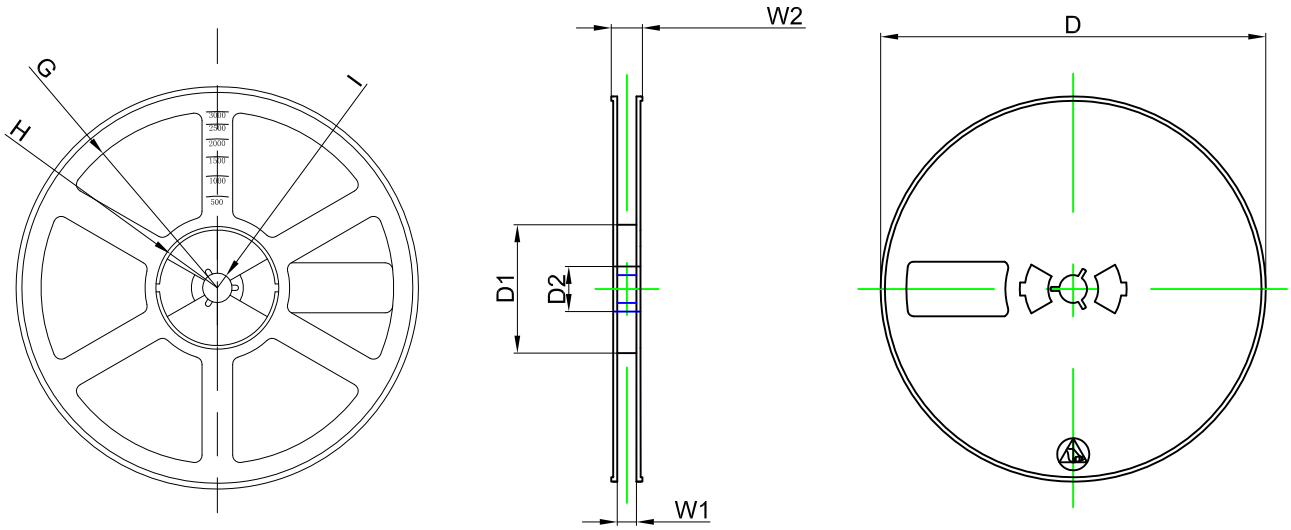
DFNWB2×2-6L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
DFNWB2×2-6L	2.30	2.30	1.10	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

DFNWB2×2-6L Tape Leader and Trailer



DFNWB2×2-6L Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	