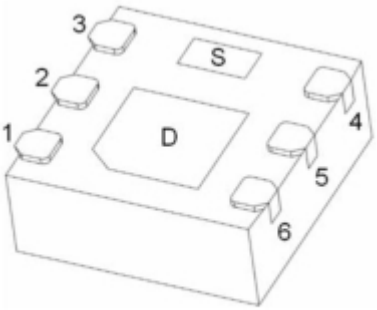
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	9.5mΩ@10V	12A
	14mΩ@4.5V	

Feature

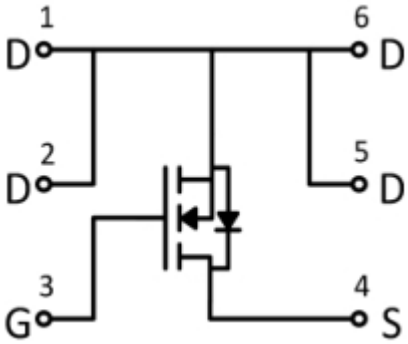
- Enhancement mode
- Low on-resistance $R_{DS(on)}$
- Pb-free lead plating; RoHS compliant

Package



DFNWB2*2-6L

Circuit diagram



Marking

30N10 =Device Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	12	A
Total Power Dissipation [2]	T_A=+25°C	P_D	0.73	W
	T_A=+70°C		0.47	
Thermal Resistance, Junction to Ambient [2]	Steady State	$R_{\theta JA}$	174	°C/W
	t<10s		121	
Total Power Dissipation [3]	T_A=+25°C	P_D	2.02	W
	T_A=+70°C		1.30	
Thermal Resistance, Junction to Ambient [3]	Steady State	$R_{\theta JA}$	66	°C/W
	t<10s		42	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 To 150	℃

Electrical characteristics

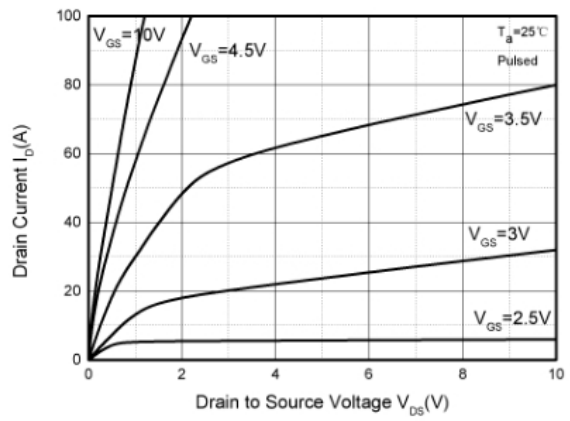
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =24V, V_{GS} = 0V, T_J=25℃			1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Static Drain-Source On-Resistance[1]	$R_{DS(on)}$	V_{GS} =10V, I_D =8A		9.5	14	mΩ
		V_{GS} =4.5V, I_D =6A		14	20	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V, V_{GS}=0V, f=1MHz		720		pF
Output Capacitance	C_{oss}			100		
Reverse Transfer Capacitance	C_{rss}			85		
Total Gate Charge	Q_g	V_{DS}=15V, V_{GS}=10V, I_D =10A		15		pF
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			3.5		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=3Ω, I_D=20A		5		nS
Turn-on Rise Time	T_r			4		
Turn-off Delay Time	$T_{d(off)}$			20		
Turn-off Fall Time	T_f			5.5		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS} = 0V , T_J=25℃			1	V

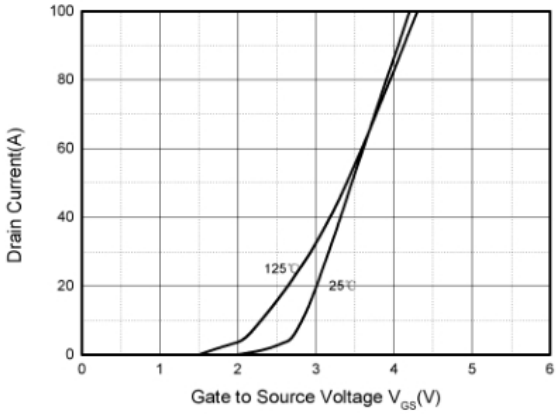
Note :

1. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
2. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

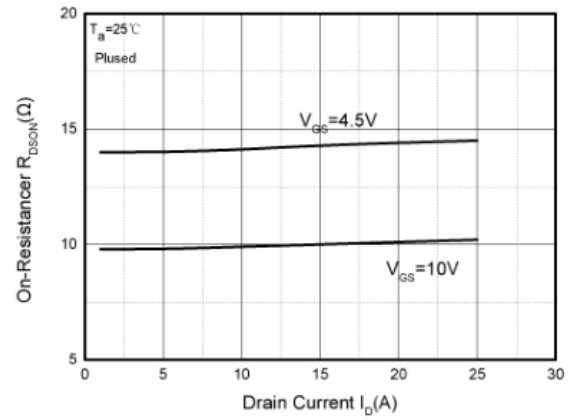
Typical Characteristics



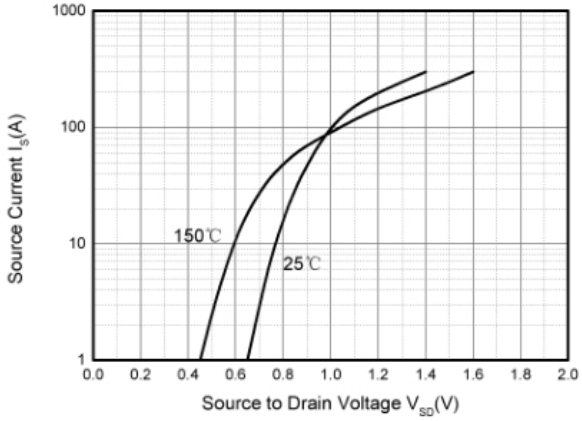
Output Characteristics



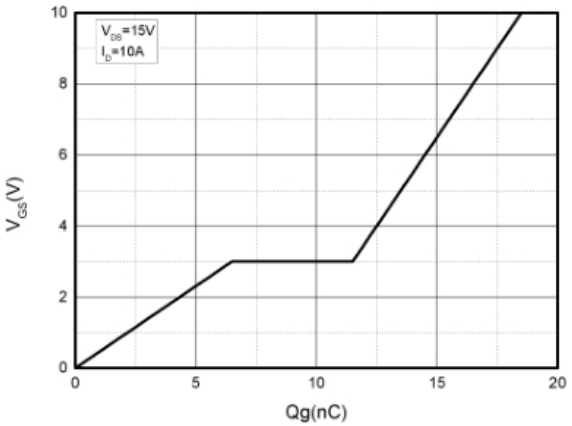
Transfer Characteristics



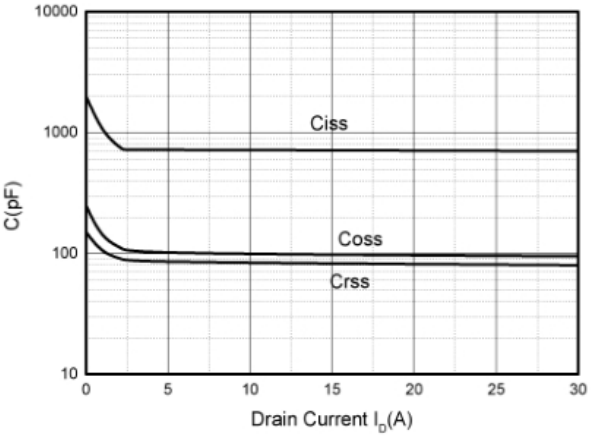
On-Resistance vs. Drain current



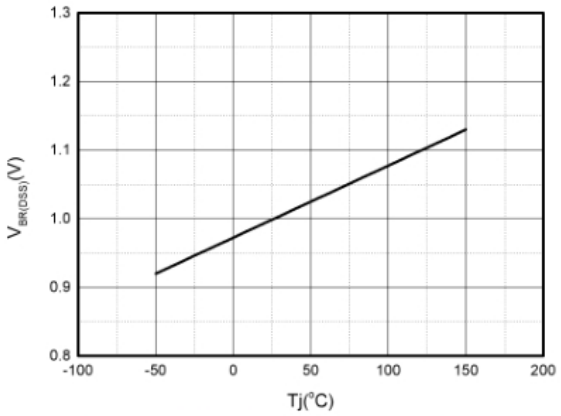
Source Current vs. Source to Drain Voltage



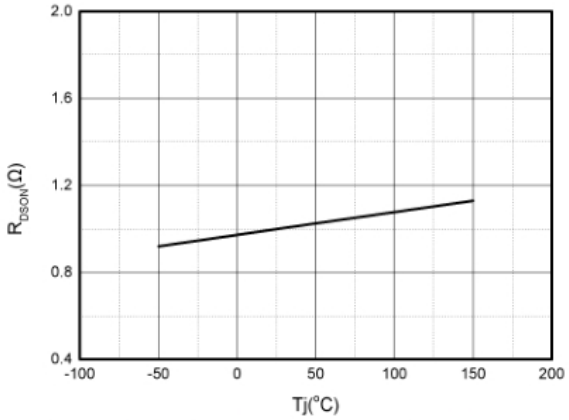
Gate Charge Characteristics



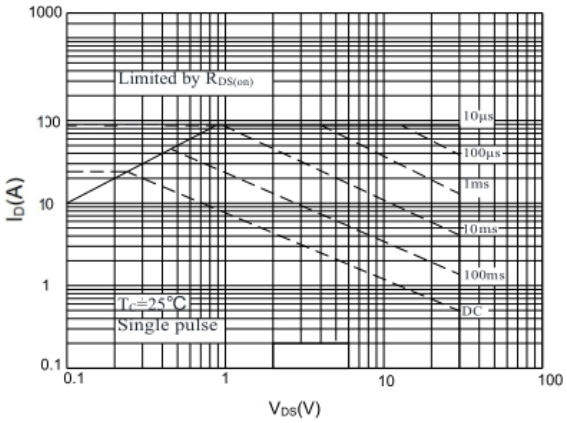
Capacitance Characteristics



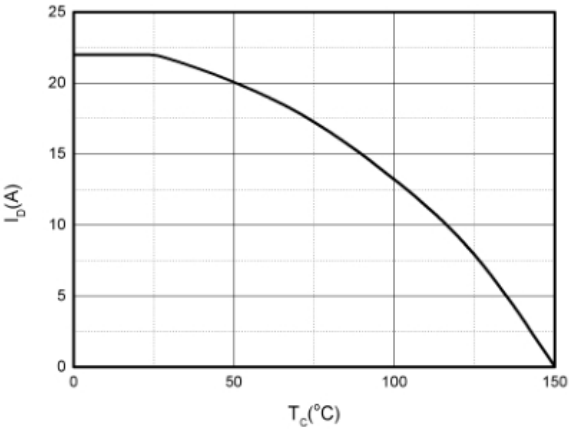
Normalized Breakdown Voltage vs.Junction Temperature



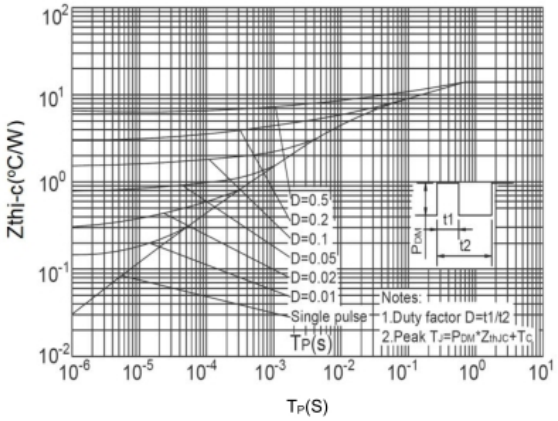
Normalized on Resistance vs.Junction Temperature



Maximum Safe Operating Area

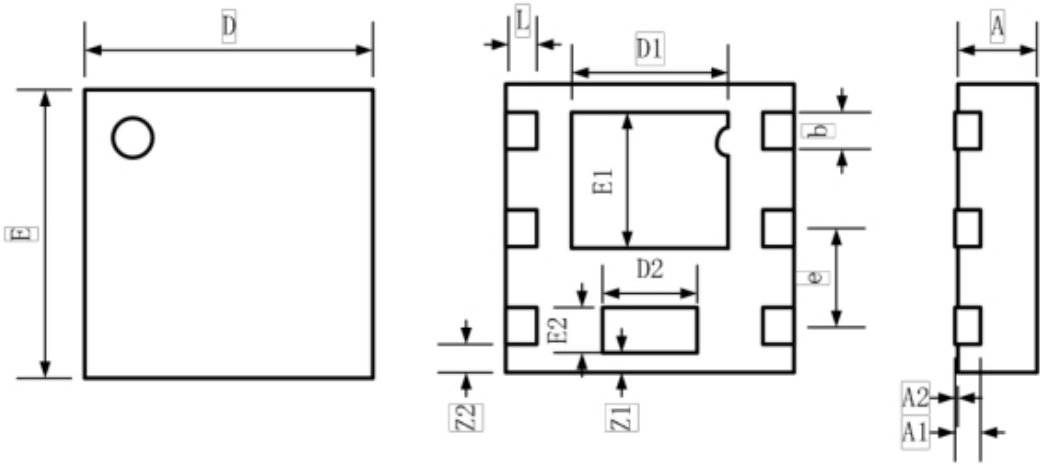


Maximum Continuous Drain Current vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case

DFN2*2-6L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.10	1.15	1.20
E1	0.90	0.95	1.00
D2	0.65	0.70	0.75
E2	0.33	0.38	0.43
L	0.225	0.275	0.325
b	0.25	0.30	0.35
e	0.65BSC		
A	0.47	0.5	0.55
A1	0.20REF		
A2	0.00		0.05
Z1	0.06	0.11	0.16
Z2	0.15	0.20	0.25