

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	30mΩ@4.5V	4A
	35mΩ@2.5V	
-30V	60mΩ@-10V	-3.5A
	80mΩ@-4.5V	

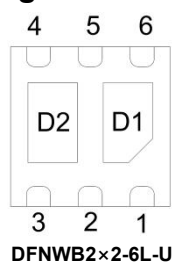
Feature

- Low On-Resistance
- Low Input Capacitance

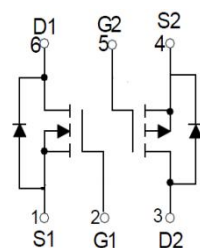
Application

- Power Management Functions
- DC-DC Converters

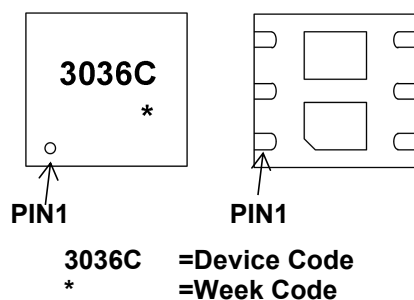
Package



Circuit diagram



Marking



**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	30	-30	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current ¹	I_D	4	-3.5	A
Pulsed Drain Current	I_{DM}	12	-10	A
Maximum Power Dissipation	P_D	2		W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	62.5		°C/W
Storage Temperature	T_{STG}	-55 ~ +150		

Notes :

1.Surface mounted on FR4 board using the minimum recommended pad size

Electrical characteristics - N-Channel Q1 (T_A=25 °C, unless otherwise noted)

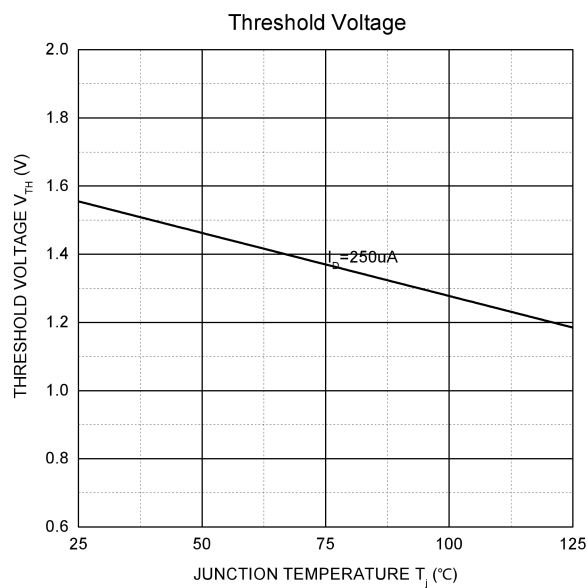
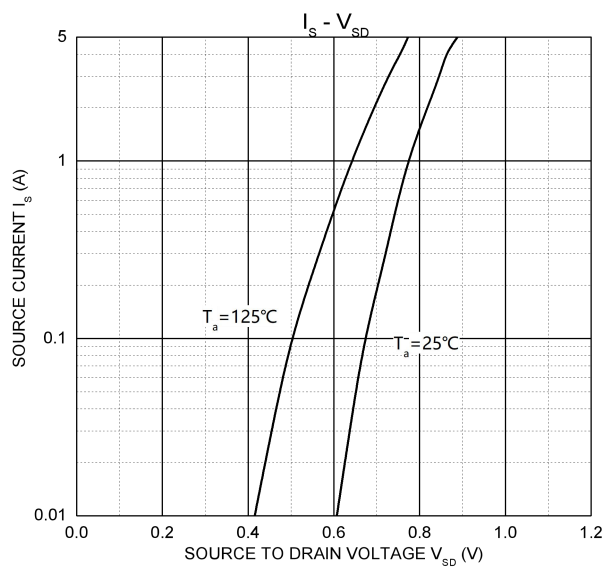
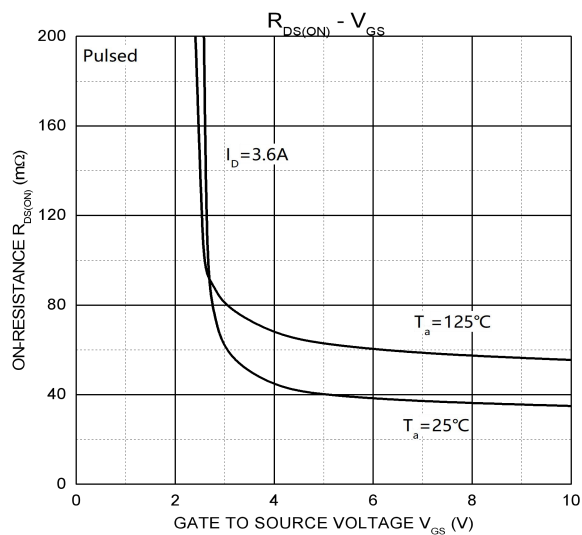
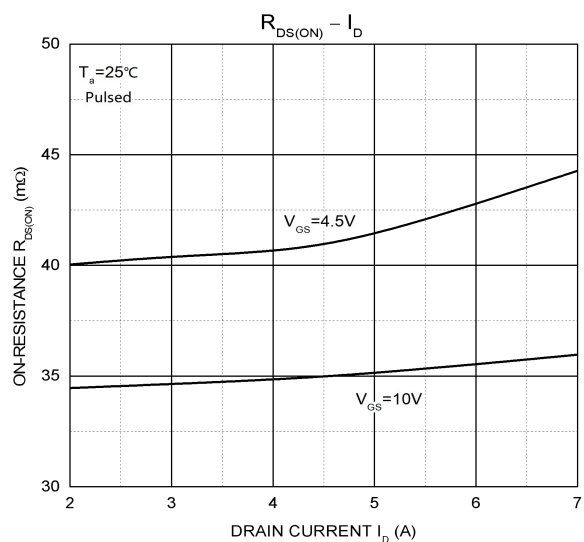
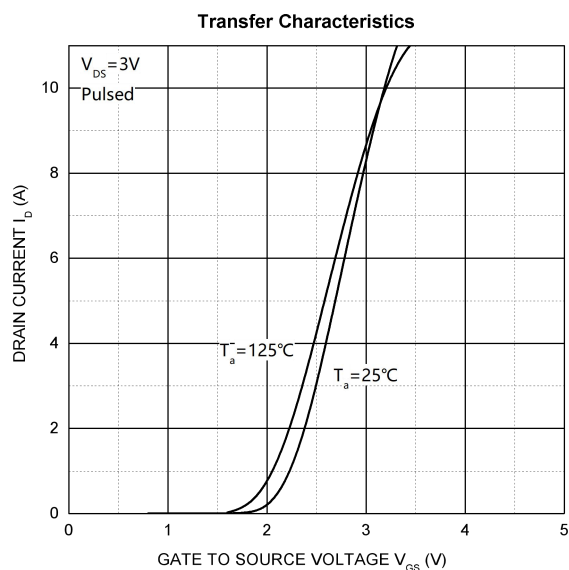
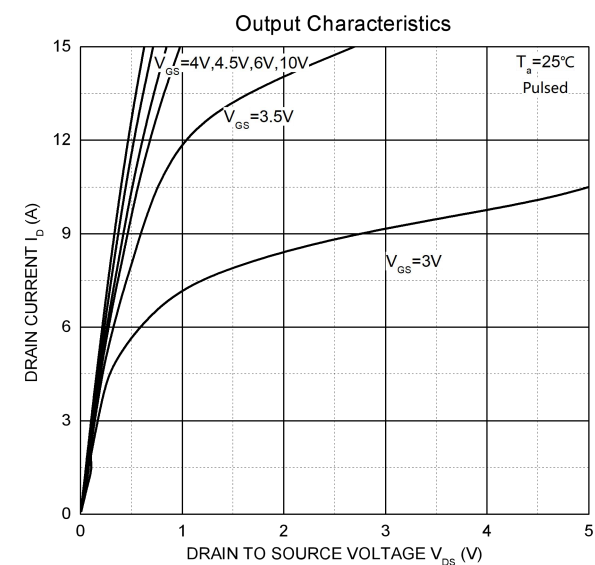
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.5A		30	45	mΩ
		V _{GS} =2.5V, I _D =2.8A		35	65	
Dynamic characteristics						
gate charge	Q _g	V _{DS} =15V, V _{GS} =5V, I _D =2.5A		3.0	4.5	nC
Total Gate Charge	Q _{gt}	V _{DS} =15V, V _{GS} =10V, I _D =2.5A		6	9	
Gate-source charge	Q _{gs}			1.6		
Gate-drain charge	Q _{gd}			0.6		
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		305		pF
Output Capacitance	C _{oss}			65		
Reverse Transfer Capacitance	C _{rss}			29		
Turn-on delay time	t _{d(on)}	V _{DD} =15V, R _L =15Ω, I _D ≈1A, V _{GEN} =10V, R _g =6Ω		7	11	ns
Turn-on rise time	t _r			12	18	
Turn-off delay time	t _{d(off)}			14	25	
Turn-off fall time	t _f			6	10	
Source-Drain Diode characteristics						
Body diode voltage	V _{SD}	I _S =1.25A, V _{GS} =0V		0.8	1.2	V

Electrical characteristics - P-Channel Q2 (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static 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			-1	μA
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	-1.5	-2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-2.5A		60	80	mΩ
		V _{GS} =-4.5V, I _D =-2.0A		80	105	
Dynamic characteristics						
Input Capacitance	C _{iSS}	V _{DS} =-10V,V _{GS} =0V,f=1MHZ		365		pF
Output Capacitance	C _{oSS}			59		
Reverse Transfer Capacitance	C _{rSS}			45		
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-15V,I _D =-3A		7.6		nC
Gate-Source Charge	Q _{gs}			1.64		
Gate-Drain Charge	Q _{gd}			1.22		
Turn-on delay time	t _{d(on)}	V _{GS} =-10V, V _{DS} =-15V, I _D =-1A R _{GEN} =2.5Ω		3.2		ns
Turn-on rise time	t _r			17.8		
Turn-off delay time	t _{d(off)}			18		
Turn-off fall time	t _f			23.2		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1.5A			-1.2	V



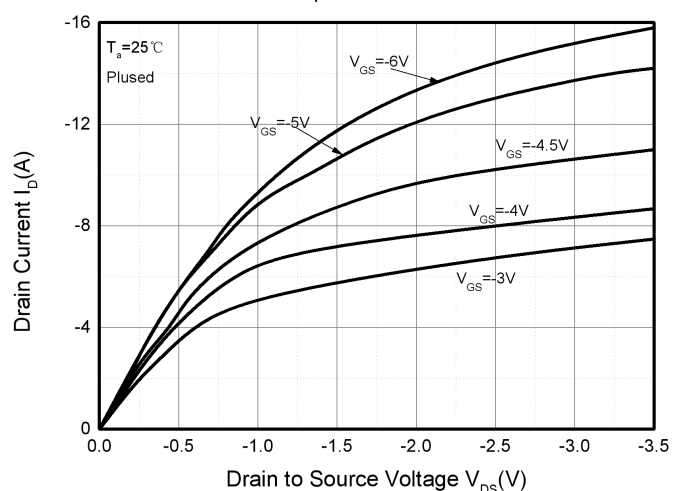
Typical Characteristics - N-Channel Q1



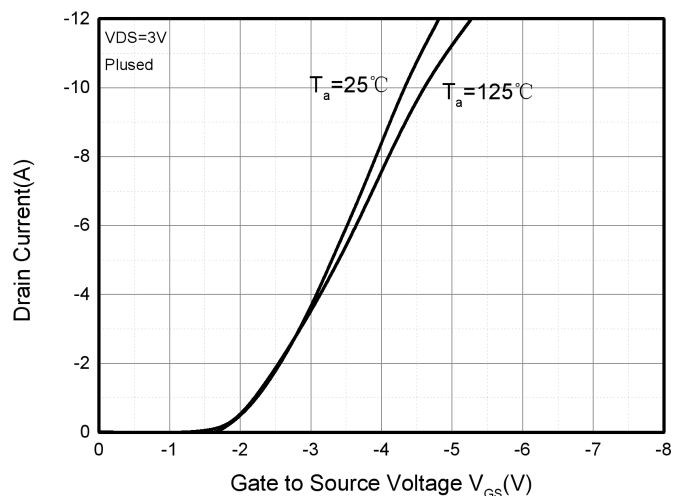


Typical Characteristics - P-Channel Q2

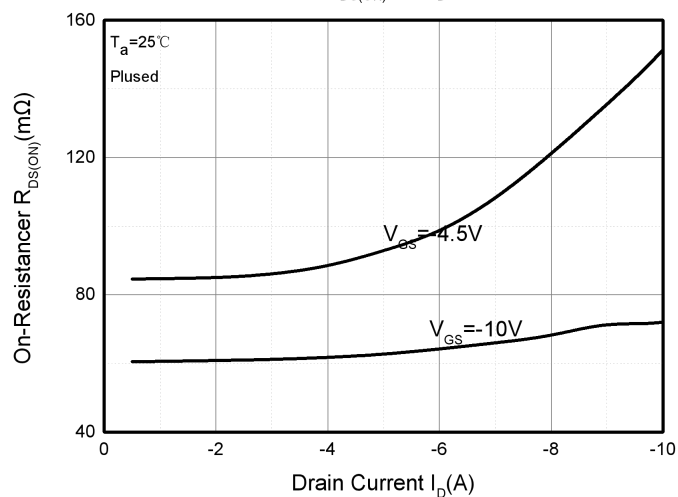
Output Characteristics



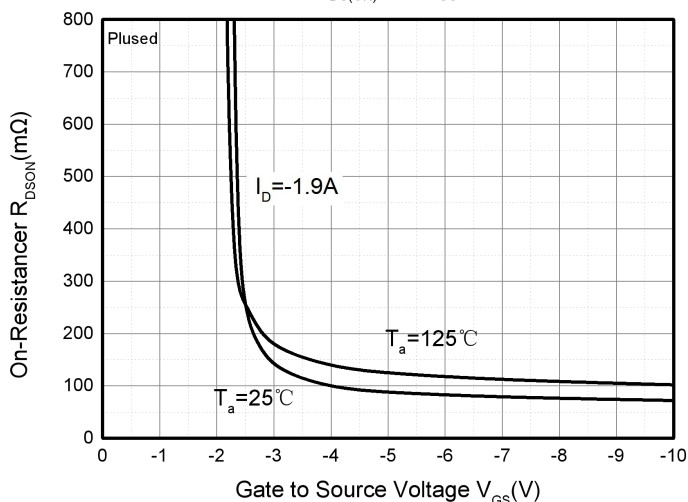
Transfer Characteristics



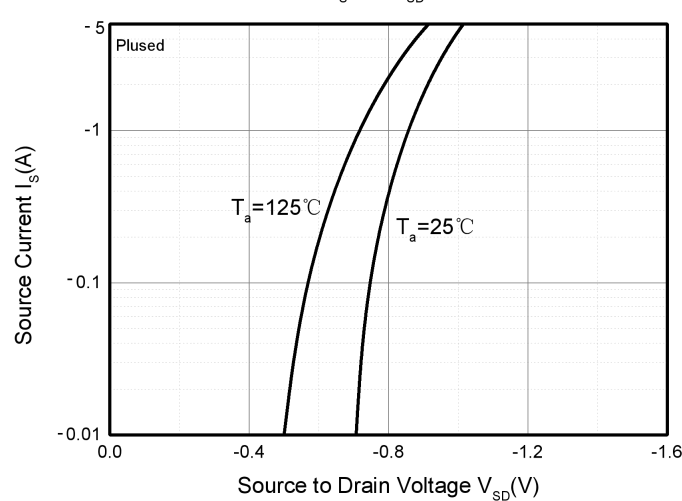
$R_{DS(ON)} - I_D$



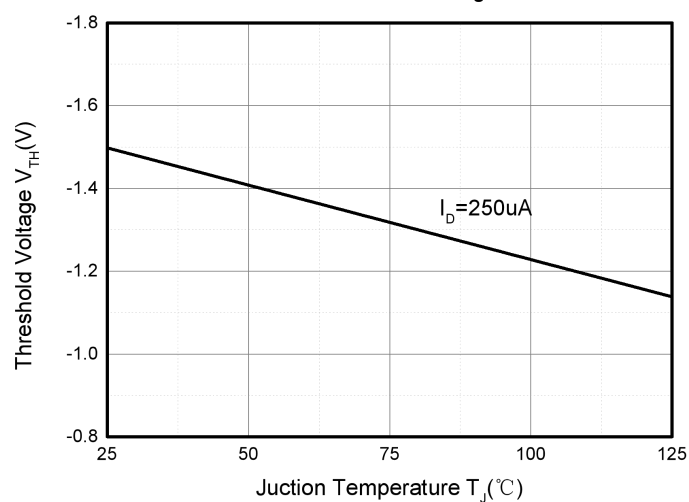
$R_{DS(ON)} - V_{GS}$



$I_S - V_{SD}$

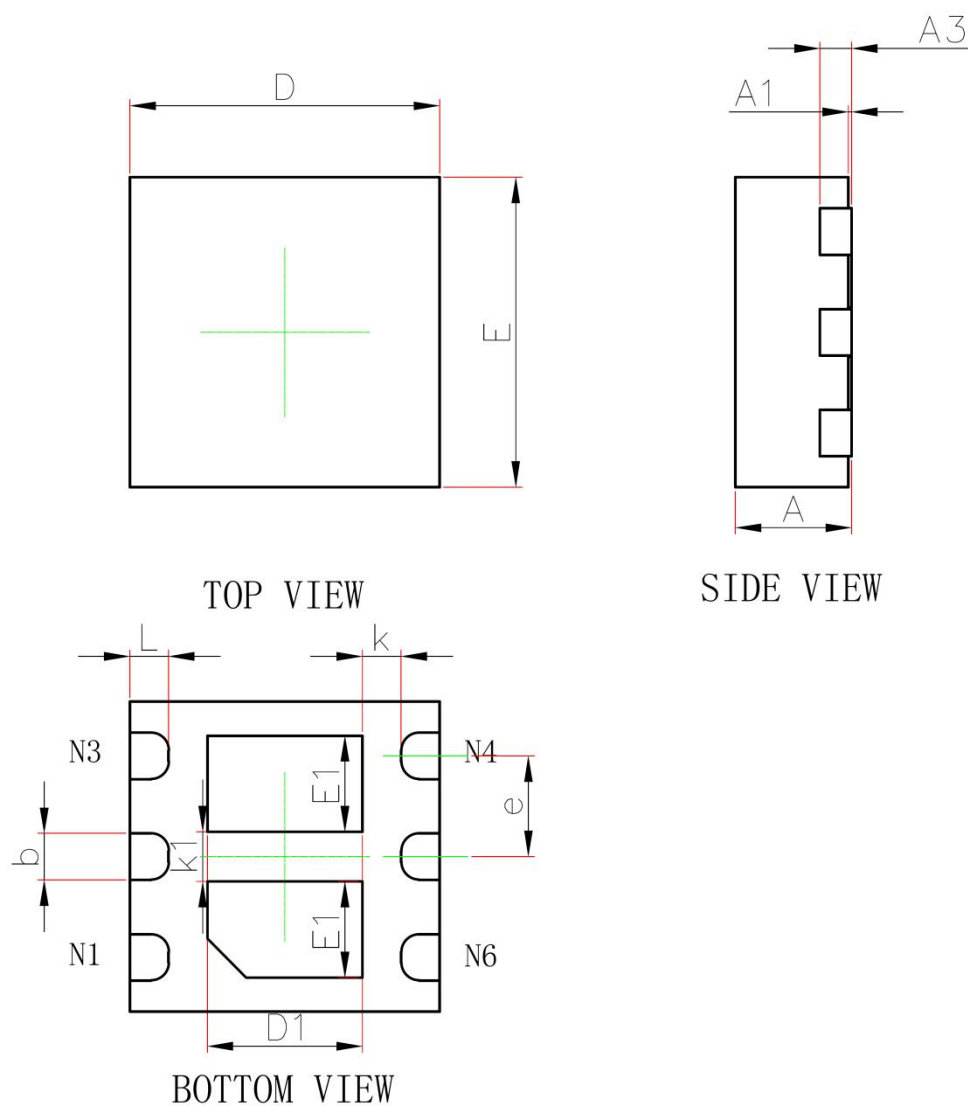


Threshold Voltage





DFNWB2*2-6L-U Package Information



Symbol	Dimensions In Millimeters		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	0.900	1.100	0.035	0.043
E1	0.520	0.720	0.020	0.028
b	0.250	0.350	0.010	0.014
e	0.650 TYP.		0.026 TYP.	
k	0.200MIN.		0.008MIN.	
L	0.200	0.300	0.008	0.012