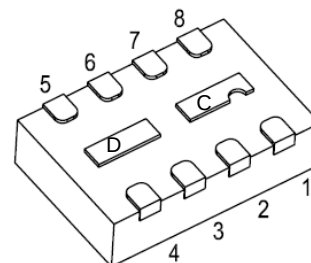


VC5853DCJ

DFNWB3×2-08L-B

$V_{(BR)DSS}/V_R$	$R_{DS(on)MAX}$	I_D/I_O
-20V	110mΩ@-4.5V	-2.7A
	160mΩ@-2.5V	
	240mΩ@-1.8V	
20V	/	1 A

DFNWB3×2-08L-B



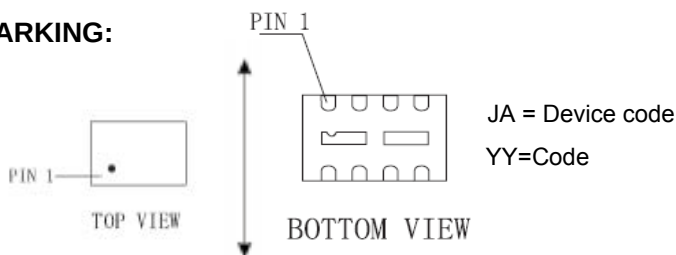
FEATURES

- Independent Pinout to Each Device to Ease Circuit Design
- Ultra low V_F
- Including a VC2301A MOSFET and a VC0520B Schottky (independently) in a package

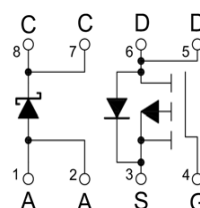
APPLICATIONS

- Li-Ion Battery Charging
- High Side DC-DC Conversion Circuits
- High Side Drive for Small Brushless DC Motors
- Power Management in Portable, Battery Powered Products

MARKING:



Equivalent Circuit



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
P-MOSFET			
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±8	V
I_D	Continuous Drain Current	-2.7	A
I_{DM}^*	Pulse Drain Current	-10	A
Schottky Barrier Diode			
V_{RRM}	Peak Repetitive Reverse Voltage	20	V
V_R	DC Blocking Voltage	20	V
I_O	Average Rectified Forward Current	1	A
Power Dissipation, Temperature and Thermal Resistance			
P_D	Power Dissipation	1.1	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	114	$^\circ\text{C/W}$
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^\circ\text{C}$
T_L	Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	260	$^\circ\text{C}$

*Repetitive rating: Pluse width limited by junction temperature.

ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$ unless otherwise specified

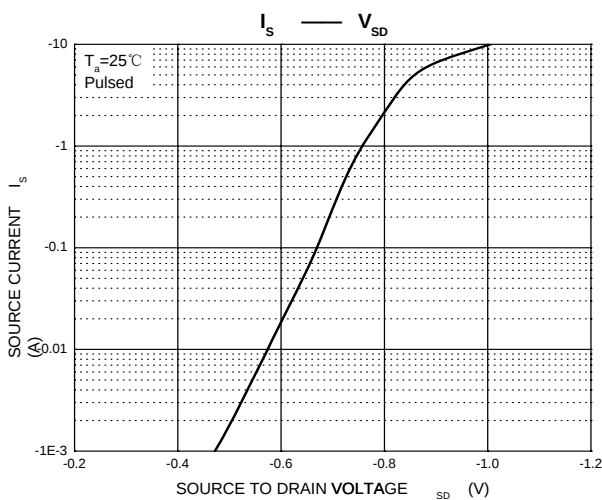
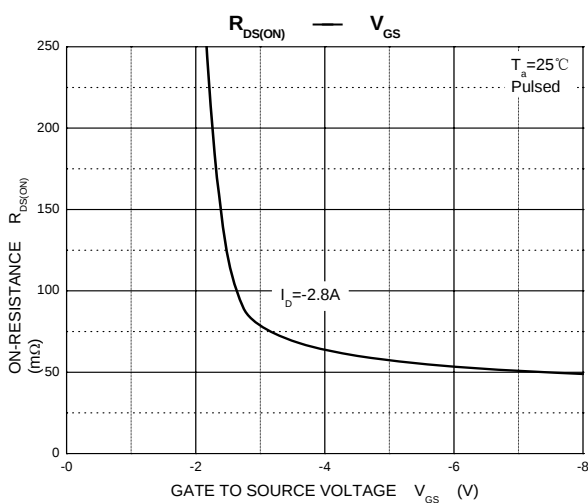
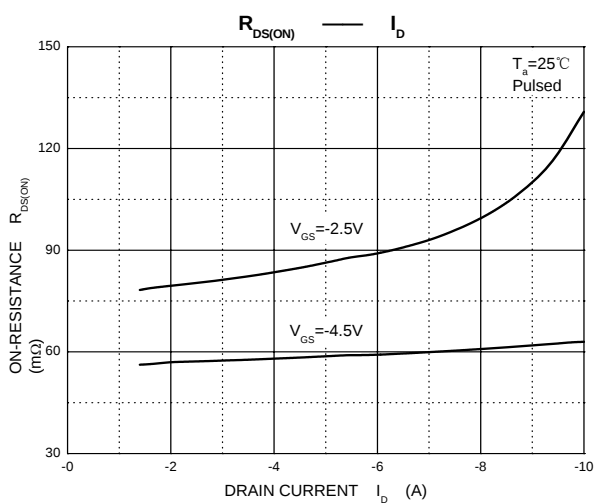
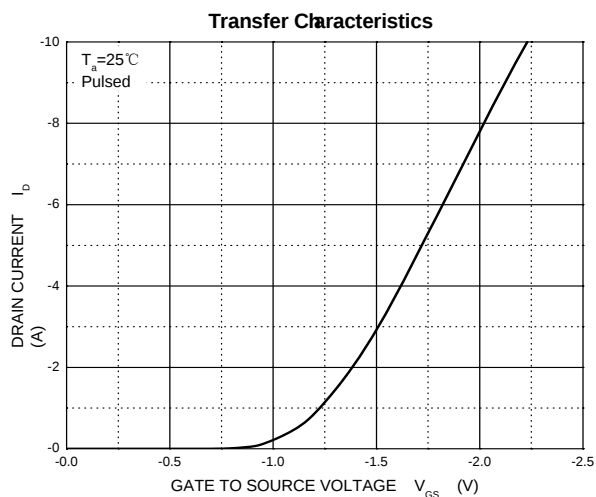
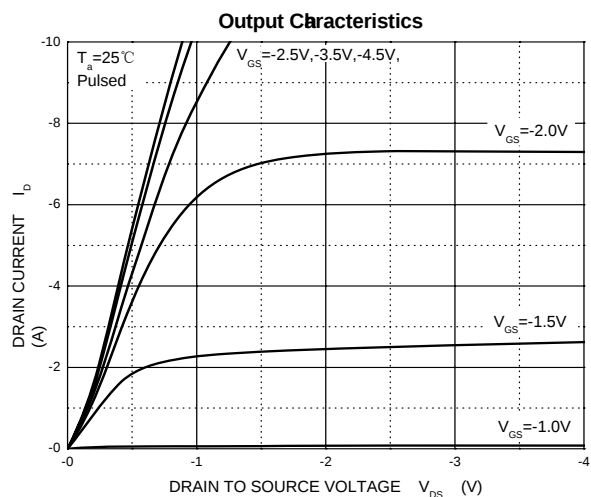
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
P-MOSFET						
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±8V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.45			V
Drain-source on-resistance(note1)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-2.7A			110	mΩ
		V _{GS} =-2.5V, I _D =-2.2A			160	mΩ
		V _{GS} =-1.8V, I _D =-1A			240	mΩ
Forward transconductance(note1)	g _{FS}	V _{DS} =-10V, I _D =-2.7A		7		S
Diode forward voltage(note1)	V _{SD}	I _S =-0.9A, V _{GS} = 0V			-1.2	V
DYNAMIC PARAMETERS (note 2)						
Input capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f =1MHz			300	pF
Output capacitance	C _{oss}				150	pF
Reverse transfer capacitance	C _{rss}				50	pF
SWITCHING PARAMETERS (note 2)						
Turn-on delay time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-10V, R _L =10Ω, R _G =6Ω, I _D =-1A			25	ns
Turn-on rise time	t _r				45	ns
Turn-off delay time	t _{d(off)}				45	ns
Turn-off fall time	t _f				40	ns
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-2.7A			6.5	nC
Gate-Source Charge	Q _{gs}			1.4		nC
Gate-Drain Charge	Q _{gd}			0.65		nC
SCHOTTKY BARRIER DIODE						
Forward voltage	V _F	I _F =0.5A			0.48	V
Reverse current	I _R	V _R =20V			100	μA
Junction capacitance	C _j	V _R =10V, f=1MHz		41		pF

Note:

- 1.Pulse test: pulse width =300 μs , duty cycles $\leq 2\%$
- 2.These parameters have no way to verify.

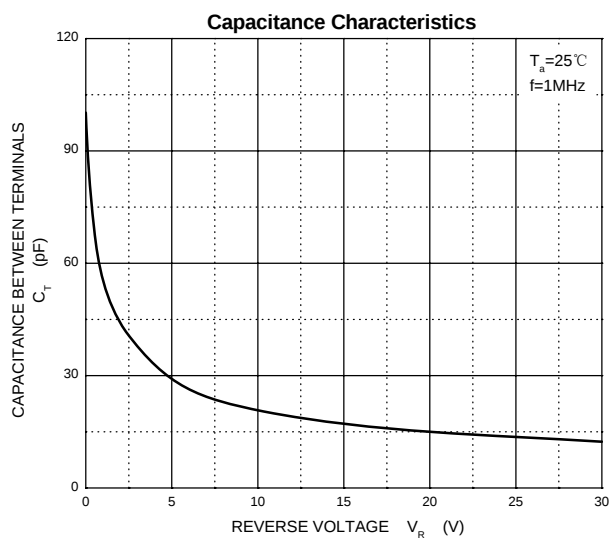
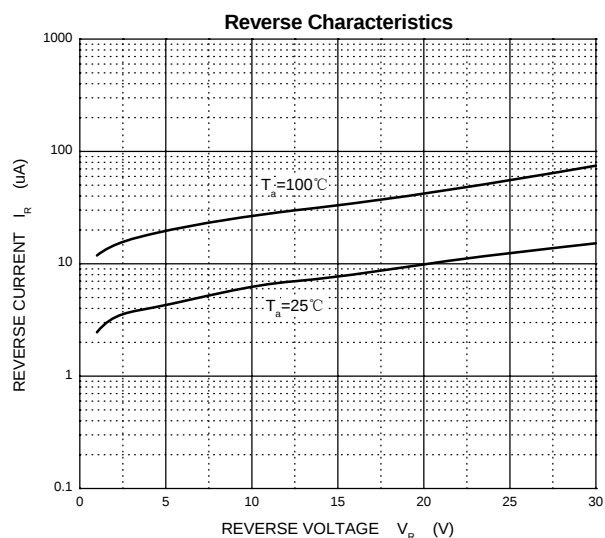
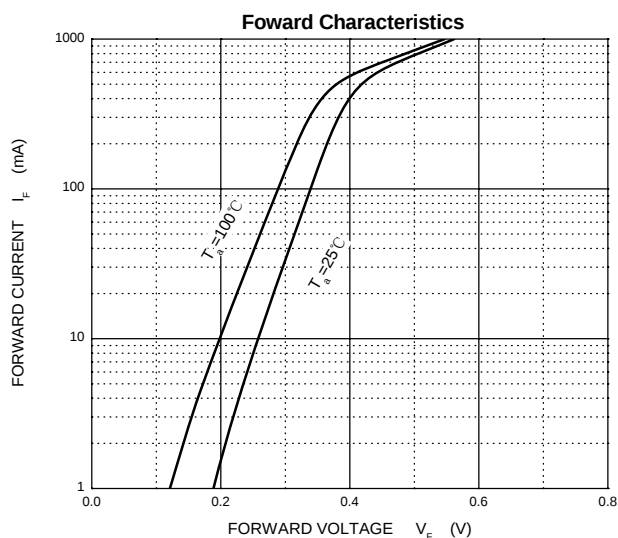
Typical Characteristics

P-channel Characteristics



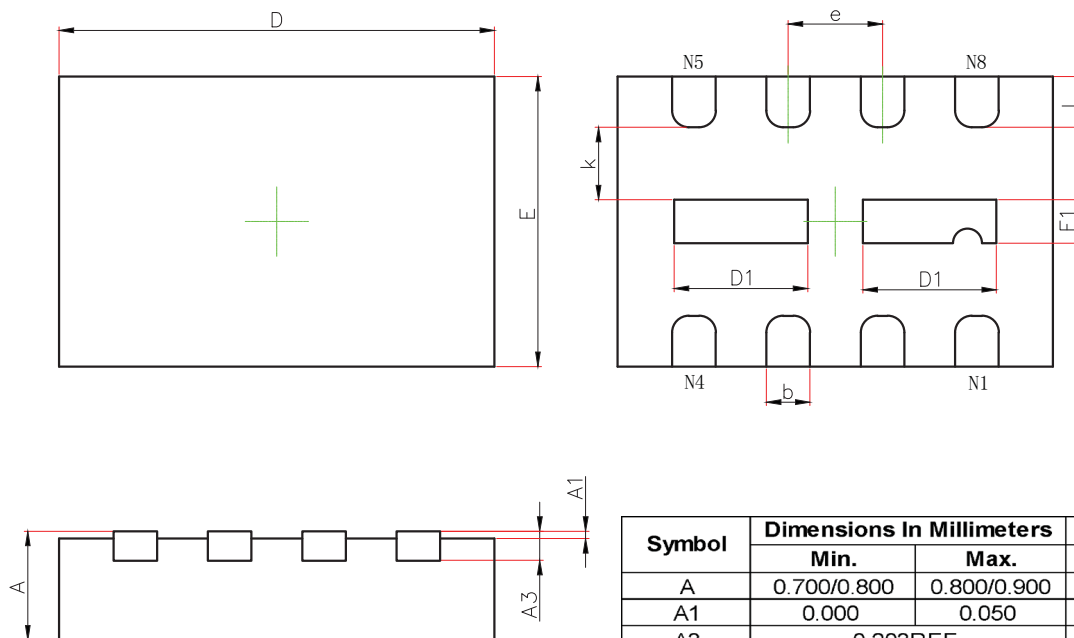
Typical Characteristics

Schottky Characteristics



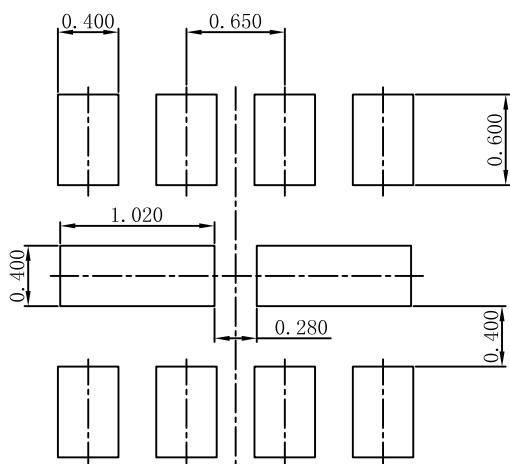
Power Management MOSFETS-Schottky

DFNWB3X2-8L-B Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.924	3.076	0.115	0.121
E	1.924	2.076	0.076	0.082
D1	0.820	1.020	0.032	0.040
E1	0.200	0.400	0.008	0.016
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.274	0.426	0.011	0.017

DFNWB3X2-8L-B Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.050\text{mm}$.
3. The pad layout is for reference purposes only.

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