

KY5853DC

P-channel MOSFET and Schottky Barrier Diode

FEATURES

- Featuring a MOSFET and Schottky Diode
- Independent Pinout to each Device to Ease Circuit

Design

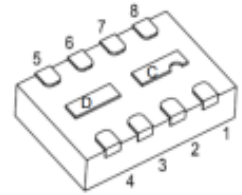
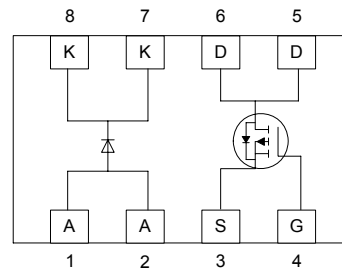
- Ultra Low VF Schottky

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

Pin configuration

DFNWB3×2-08L-B(Top View)



Marking : .JA

MOSFET MAXIMUM RATINGS (Ta = 25°C unless otherwise noted)

Symbol	Parameter	VUi Y	Unit
V_{DSS}	Drain-Source voltage	-20	V
V_{GS}	Gate-Source Voltage	±8	V
I_D	Continuous Drain Current	-2.7	A
I_{DM}	Drain Current-Pulsed	-10	A
P_D	Power Dissipation	1.1	W
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55-150	°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	110	°C /W

SCHOTTKY DIODE MAXIMUM RATINGS(TJ = 25° C unless otherwise noted)

Symbol	Parameter	Limits	Unit
V_{RRM}	Peak repetitive reverse voltage	20	V
V_R	DC Blocking voltage	20	V
I_F	Average rectified forward current	1	A

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MOSFET ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{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 -Source leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} = V _{DS} , I _D = -250μA	-0.45			V
Static Drain-Source On-Resistance	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	g _{FS}	V _{DS} = -10V, I _D = -2.7A		7		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1.0 MHz			300	pF
Output Capacitance	C _{oss}				150	pF
Reverse Transfer Capacitance	C _{rss}				50	pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10V, R _L = 10Ω I _D = -1A, R _G = 6Ω, V _{GEN} = -4.5V			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, I _D = -2.7A, V _{GS} = -4.5V			6.5	nC
Gate-Source Charge	Q _{gs}			1.4		nC
Gate-Drain Charge	Q _{gd}			0.65		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Forward Diode Voltage	V _{SD}	V _{GS} = 0V, I _S = -0.9A			-1.2	V

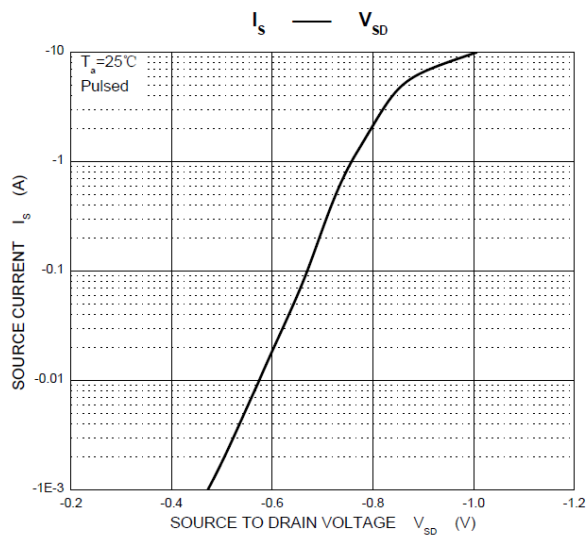
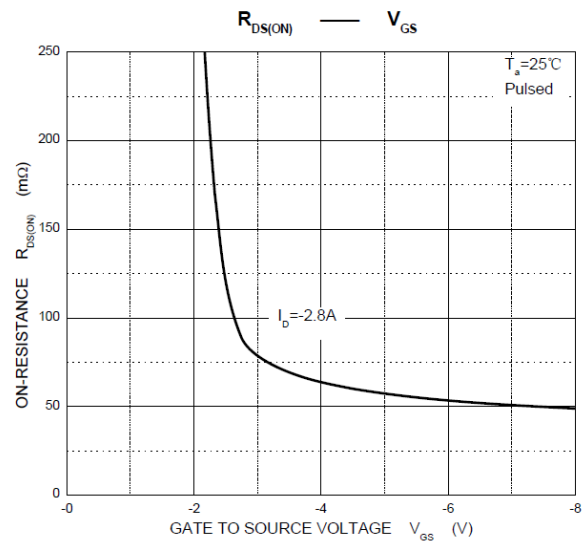
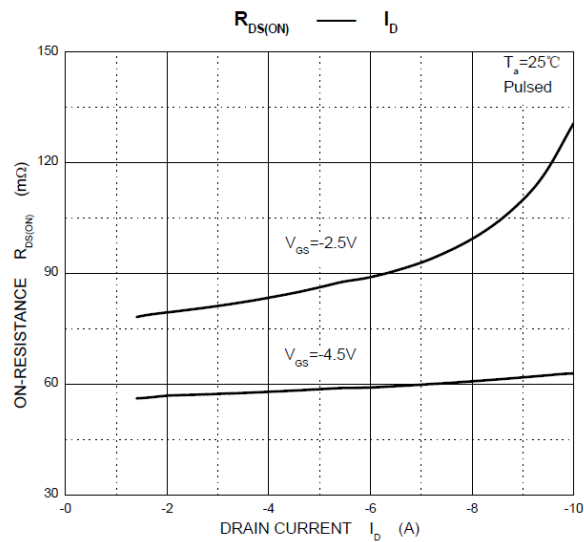
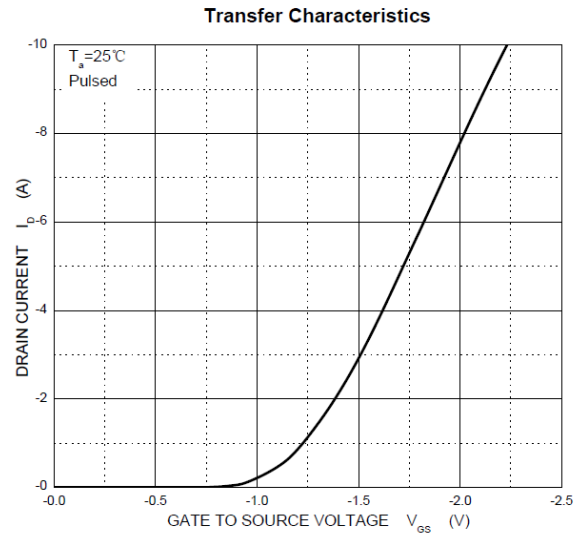
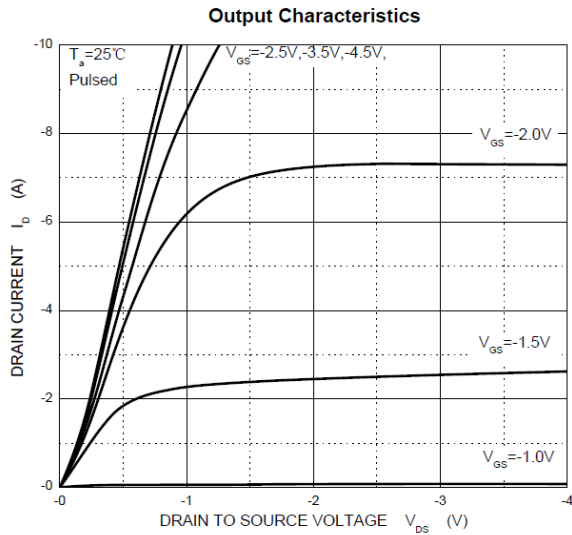
SCHOTTKY DIODE ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Forward voltage	V _F			0.48	V	I _F = 0.5A
Reverse current	I _R			100	μA	V _R = 20V
Junction capacitance	C _T		31		pF	V _R = 10V, f = 0

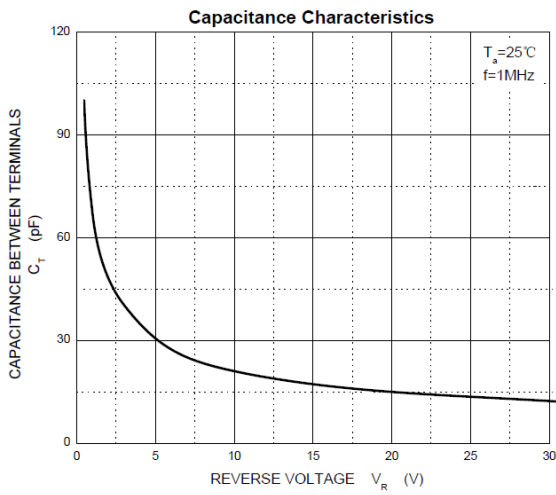
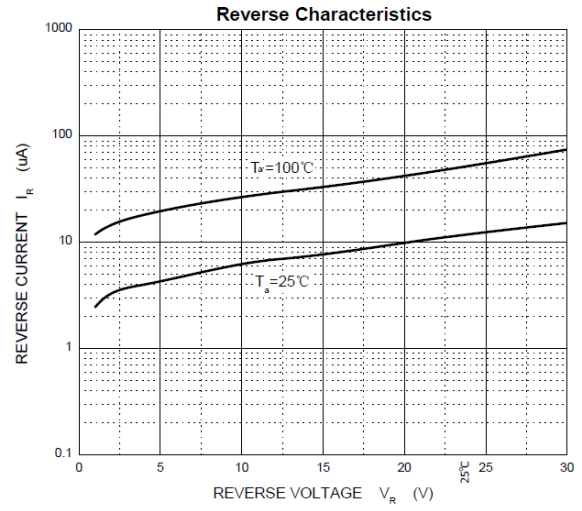
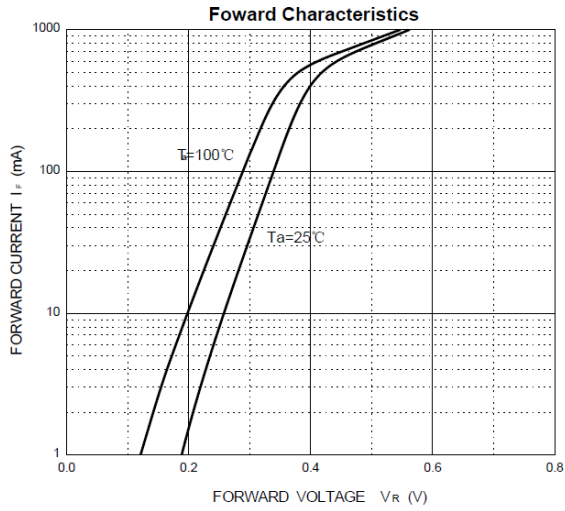
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Typical Characteristics

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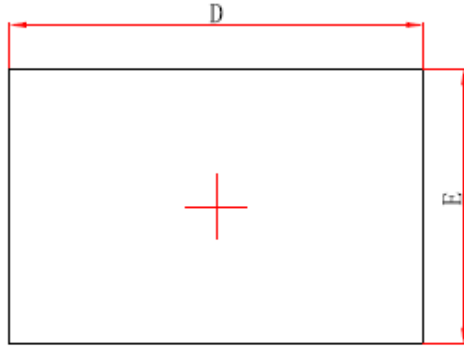
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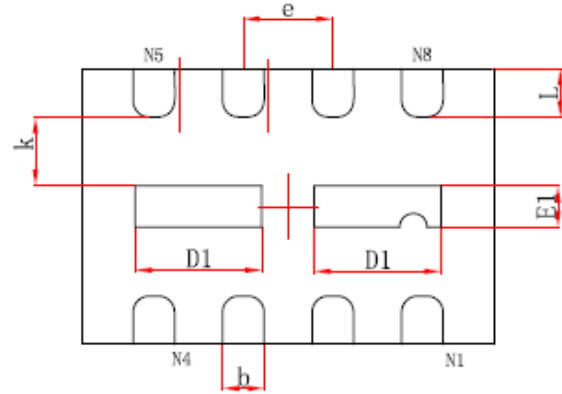
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PACKAGE OUTLINE

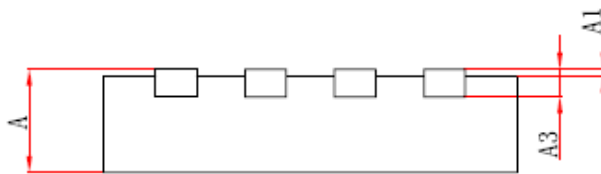
DFNWB3X2-8L-B(P0.65T0.75/0.85)



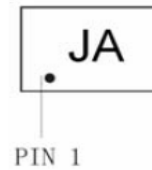
Top View



Bottom View



Side View



Marking

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.600	0.800	0.023	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.900	3.100	0.114	0.122
E	1.900	2.100	0.075	0.083
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	0.250	0.450	0.010	0.018