/ Descriptions

PDFN5 6 N

N-Channel MOSFET in a PDFN5 6 Plastic Package.

/ Features

AEC-Q101

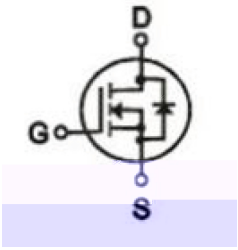
Low $R_{DS(ON)}$ to minimize conductive loss;low Gate Charge for fast switching;Low Thermal resistance; Qualified to AEC-Q101 Standards for High Reliability; HF Product.

/ Applications

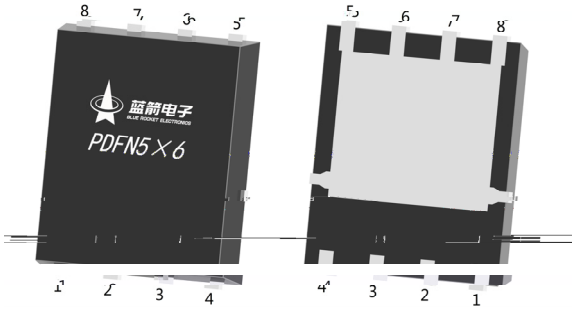
MB/NB/UMPC/VGA Buck -

Battery Management,High Frequency Point-of-Load Synchronous Buck Conventer for MB/NB/UMPC/VGA,Networking DC-DC Power System,Load Switch, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1、2、3： S PIN4：G PIN5、6、7、8：D

Pin	极性
1	S
2	S
3	S
4	G
5	D
6	D

/ Marking

。See Marking Instructions.

/ Absolute Maximum Ratings(T_a=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current - Continuous		I_D	30	A
Drain Current – Pulsed		I_{DM}	110	A
Gate-Source Voltage		V_{GS}	±20V	V
Power Dissipation		P_D(T_c=25℃)	36.5	W
Single Pulse Avalanche Energy(L=0.5mH)		E_{AS}	78.5	mJ
Avalanche Current(L=0.5mH)		I_{AS}	15	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	25	/ W
	Steady-State		55	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	3.4	

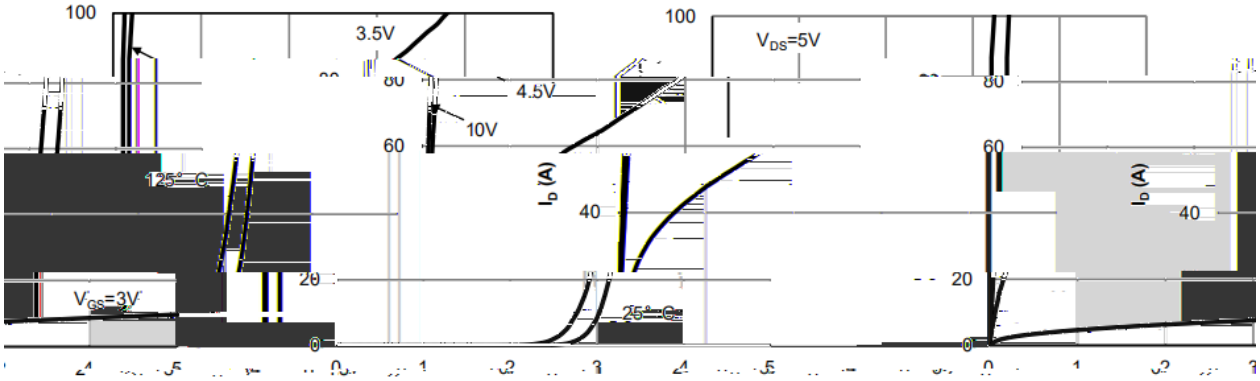
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	40	46		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A		5.6	6	m
		V_{GS}=4.5V, I_D=10A		7.8	9	
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		990		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			42		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		5.2		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V, V_{DS}=20V, I_D=20A		20		nC
Total Gate Charge	$Q_{g(4.5V)}$			8.5		
Gate Source Charge	Q_{gs}			5.5		
Gate Drain Charge	Q_{gd}			3		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=20V R_L=1.0 Ω R_{GEN}=3 Ω		7.5		ns
Turn-On Rise Time	t_r			2		
Turn-Off Delay Time	$t_{d(off)}$			23		
Turn-Off Fall Time	t_f			3		

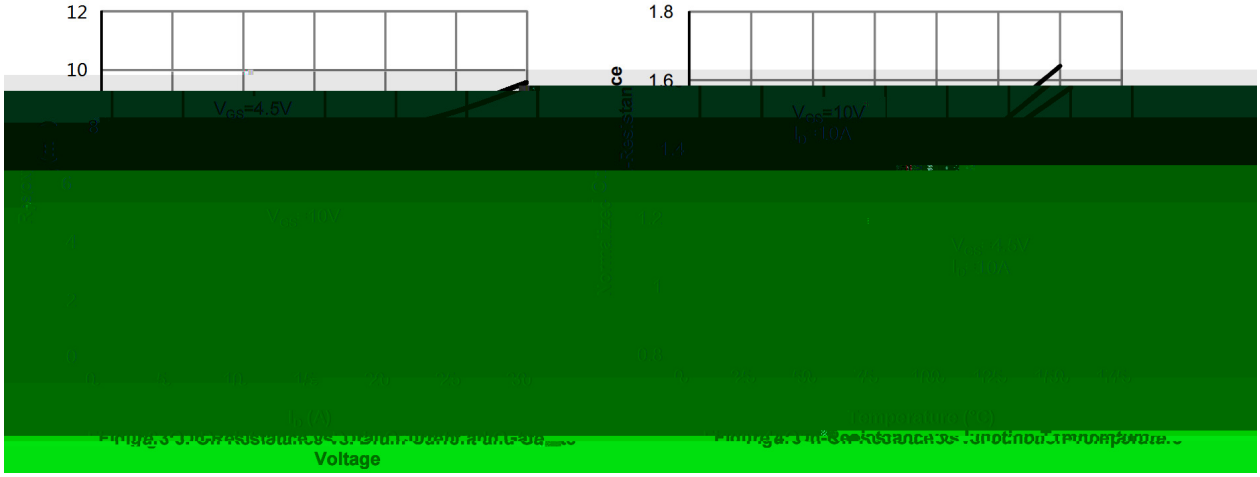
/ Electrical Characteristic Curve

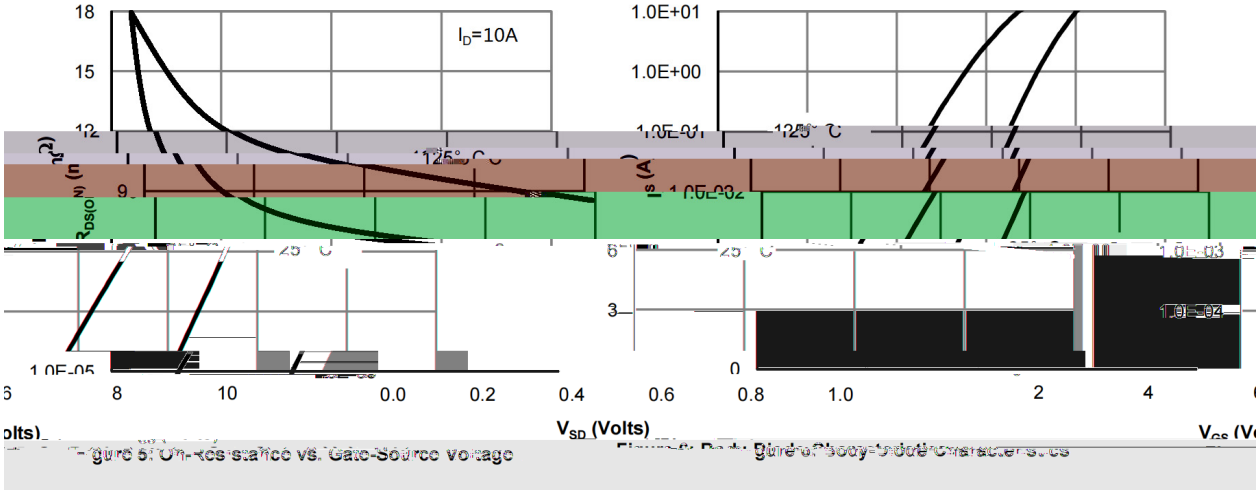


re 1: On-Region Characteristics

Figure 2: Transfer Characteristics

Figu



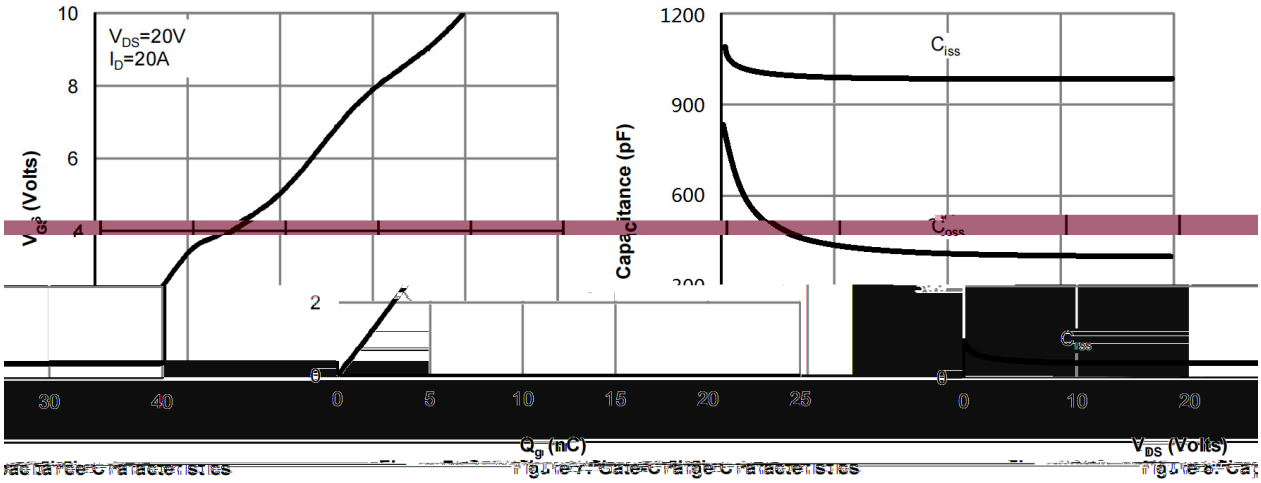


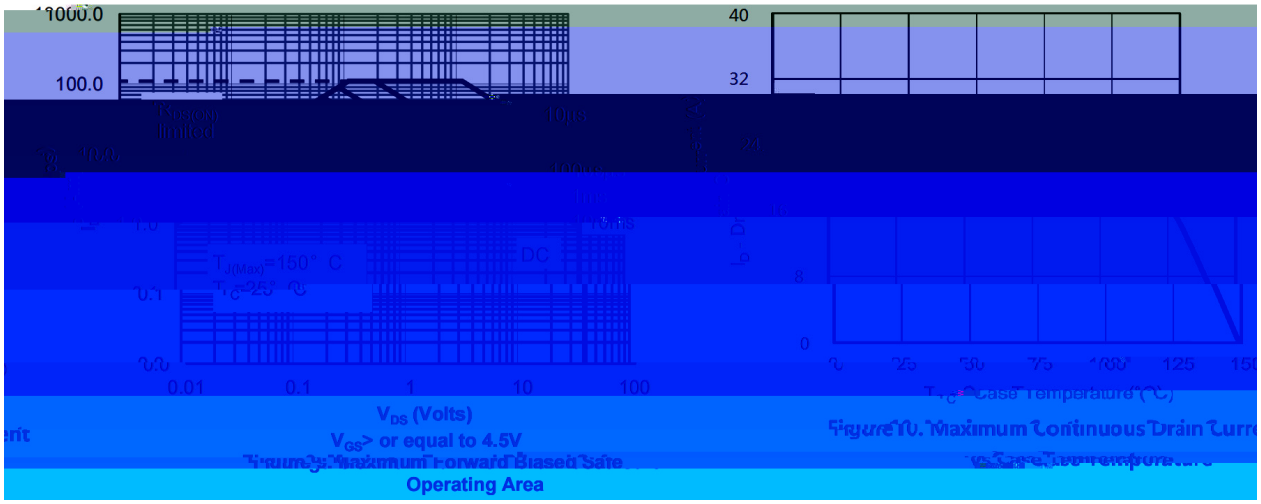
olts)

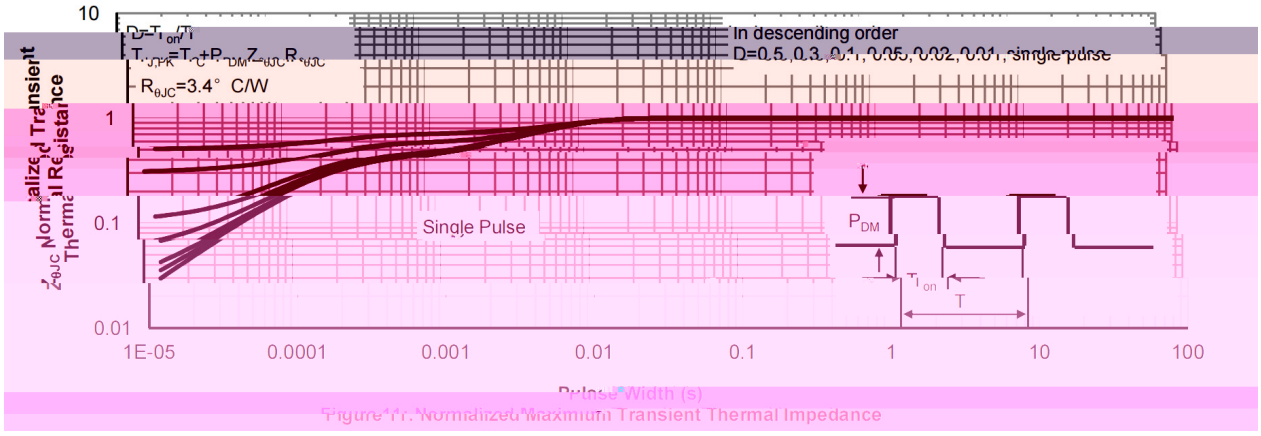
Figure 5: On-Resistance vs. Gate-Source Voltage

V_{GS} (V

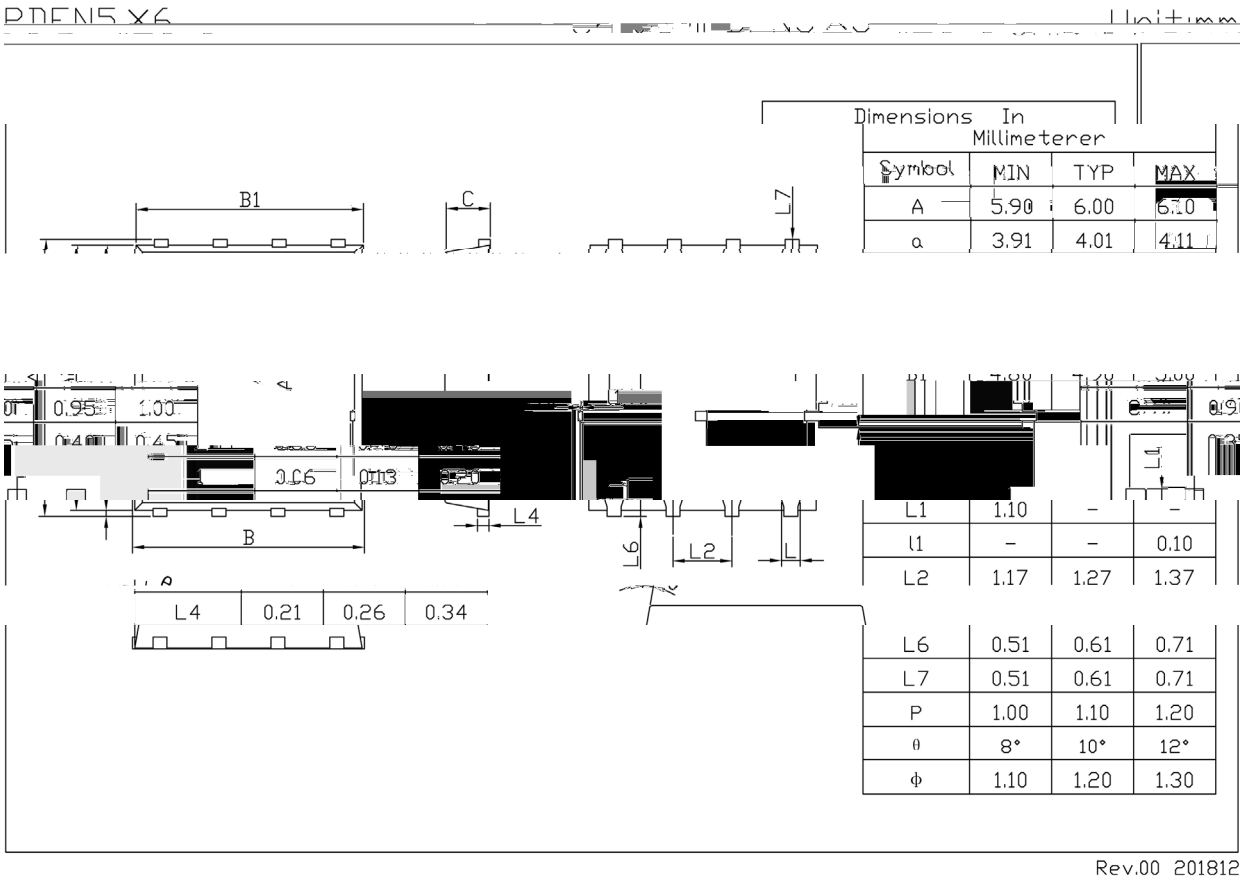
/ Electrical Characteristic Curve







/ Package Dimensions



Symbol	MIN	TYP	MAX
A	5.90	6.00	6.10
a	3.91	4.01	4.11

L1	1.10	–	–
l1	–	–	0.10
L2	1.17	1.27	1.37
L4	0.21	0.26	0.34
L6	0.51	0.61	0.71
L7	0.51	0.61	0.71
P	1.00	1.10	1.20
θ	8°	10°	12°
ϕ	1.10	1.20	1.30

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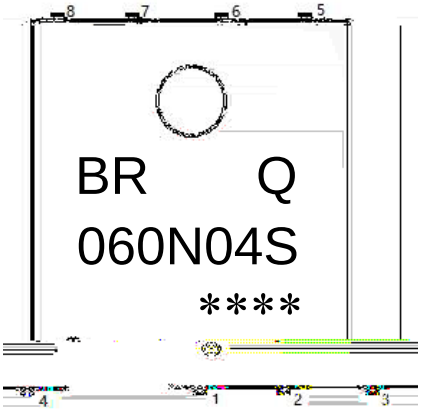
/ Marking Instructions



060N04S

Note

BR	Company Code
Q:	Automobile halogen-free product Code
060N04S	Product Type
****:	Lot No. Code, code change with Lot No

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

Note:

1	150	200	60	120sec;	1.Preheating:150~200 , Time:60~120sec.
2	255	5	5	0.5sec;	2.Peak 0.5sec; 2.PQ