

/ Descriptions

PDFN5 6 N
N-Channel MOSFET in a PDFN5 6 Plastic Package .

/ Features

AEC-Q101

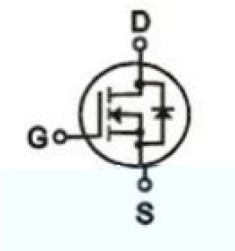
Low $R_{DS(ON)}$ to minimize conductive loss, low Gate Charge for fast switching, Low Thermal resistance, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

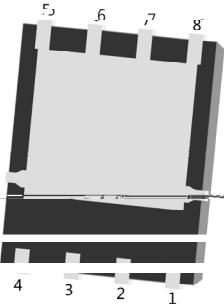
MB/NB/UMPC/VGA Buck -

Battery Management, High Frequency Point-of-Load Synchronous Buck Converter 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
7	D
8	D

/ Marking

。 See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	30	V	
Drain Current - Continuous	I_D	146	A	
Drain Current – Pulsed	I_{DM}	300	A	
Gate-Source Voltage	V_{GS}	± 20	V	
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	57	W	
Single Pulse Avalanche Energy($L=0.5\text{mH}$)	E_{AS}	315	mJ	
Avalanche Current($L=0.5\text{mH}$)	I_{AS}	30	A	
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150		
Thermal resistance, junction - ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	20	$^\circ\text{C/W}$
	Steady-State		50	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	2.2	

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	30	35		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1	1.6	3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=24\text{A}$		1.5	1.8	m
		$V_{GS}=4.5\text{V}, I_D=12\text{A}$		2.0	2.8	
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$		0.68	1	V
Input Capacit						

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\ \Omega$ $R_{GEN}=3\ \Omega$		12.5		ns
Turn-On Rise Time	t_r			6.0		
Turn-Off Delay Time	$t_{d(off)}$			47		
Turn-Off Fall Time	t_f			10.5		

/ Electrical Characteristic Curve

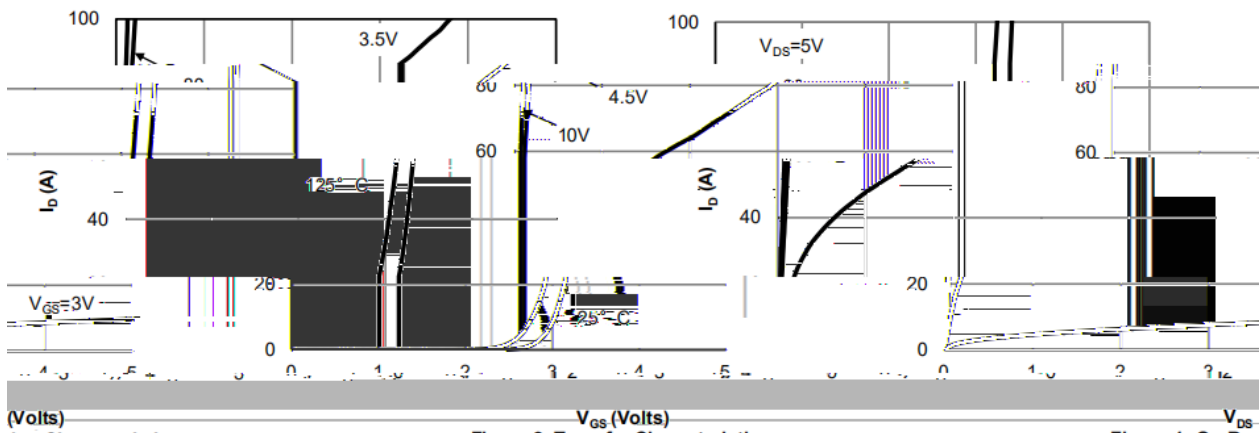


Figure 1: On-Reg.

Figure 2: Transfer Characteristics

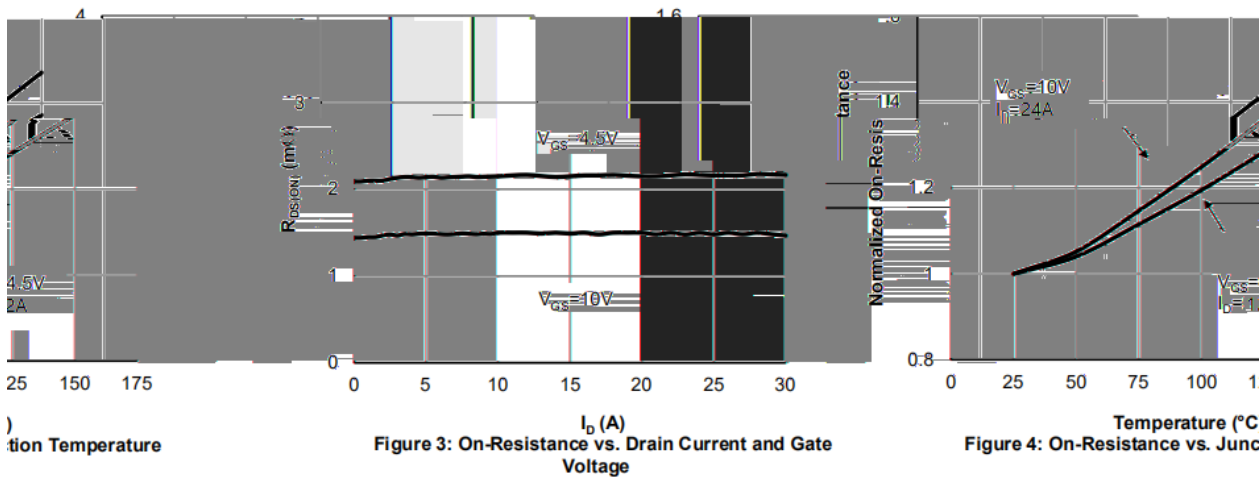


Figure 3: On-Resistance

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

Figure 4: On-Resistance vs. Junction Temperature

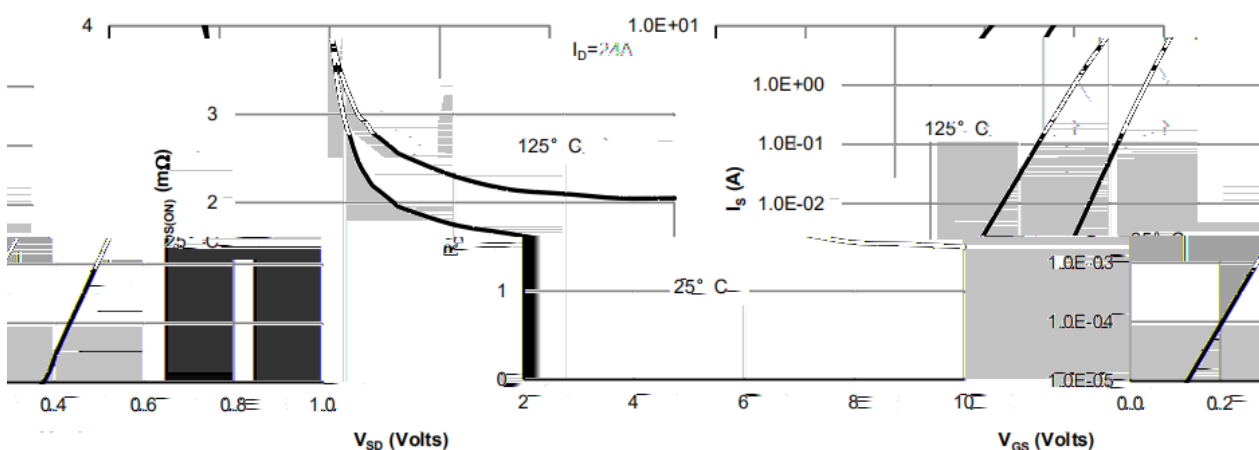


Figure 4: On-Resistance vs. Junction Temperature

Figure 6: Body-Diode Characteristics

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

/ Electrical Characteristic Curve

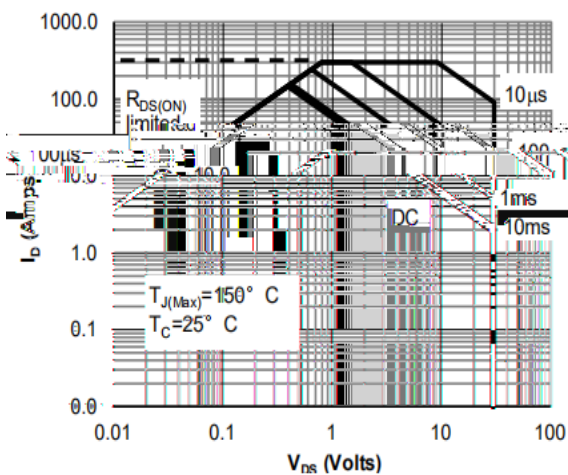
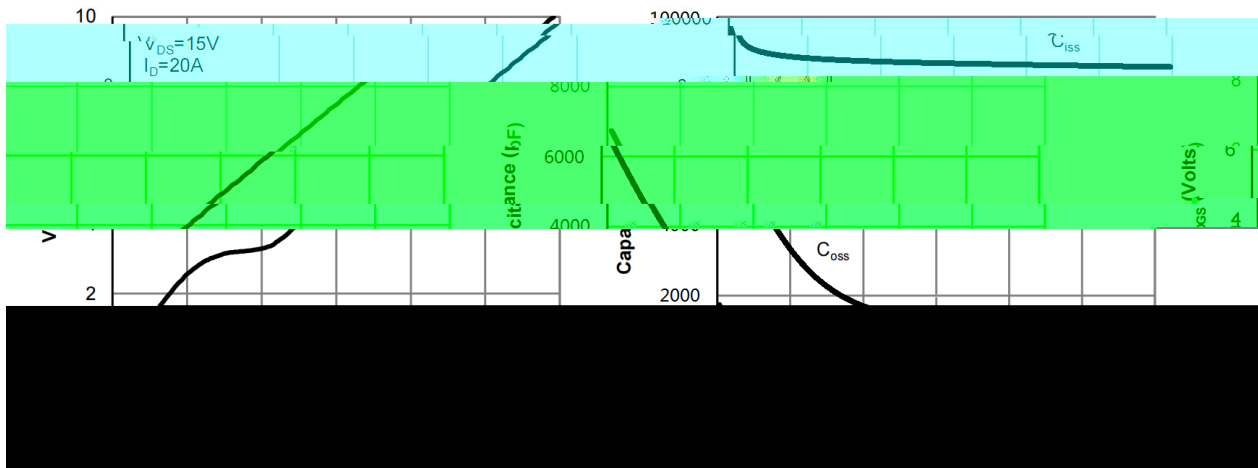


Figure 9: Maximum Forward Biased Safe Operating Area

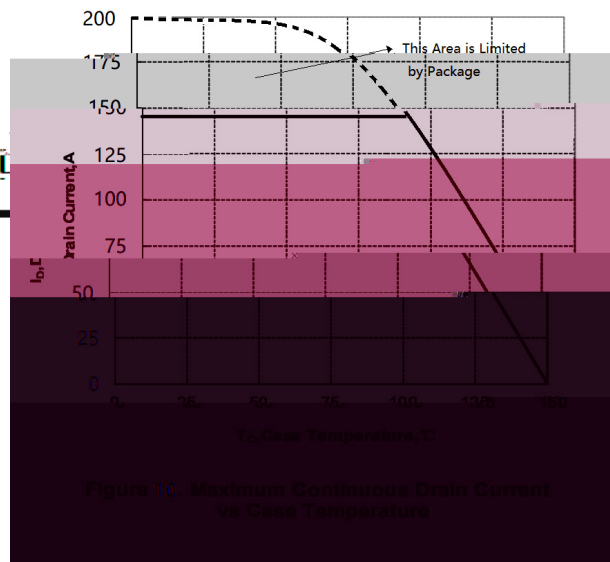


Figure 10: Maximum Continuous Drain Current vs Case Temperature

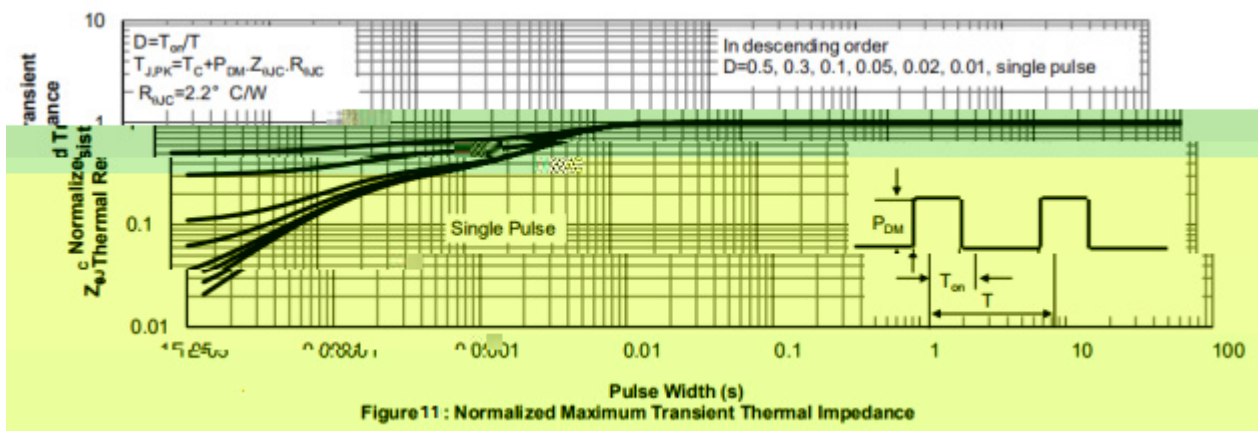
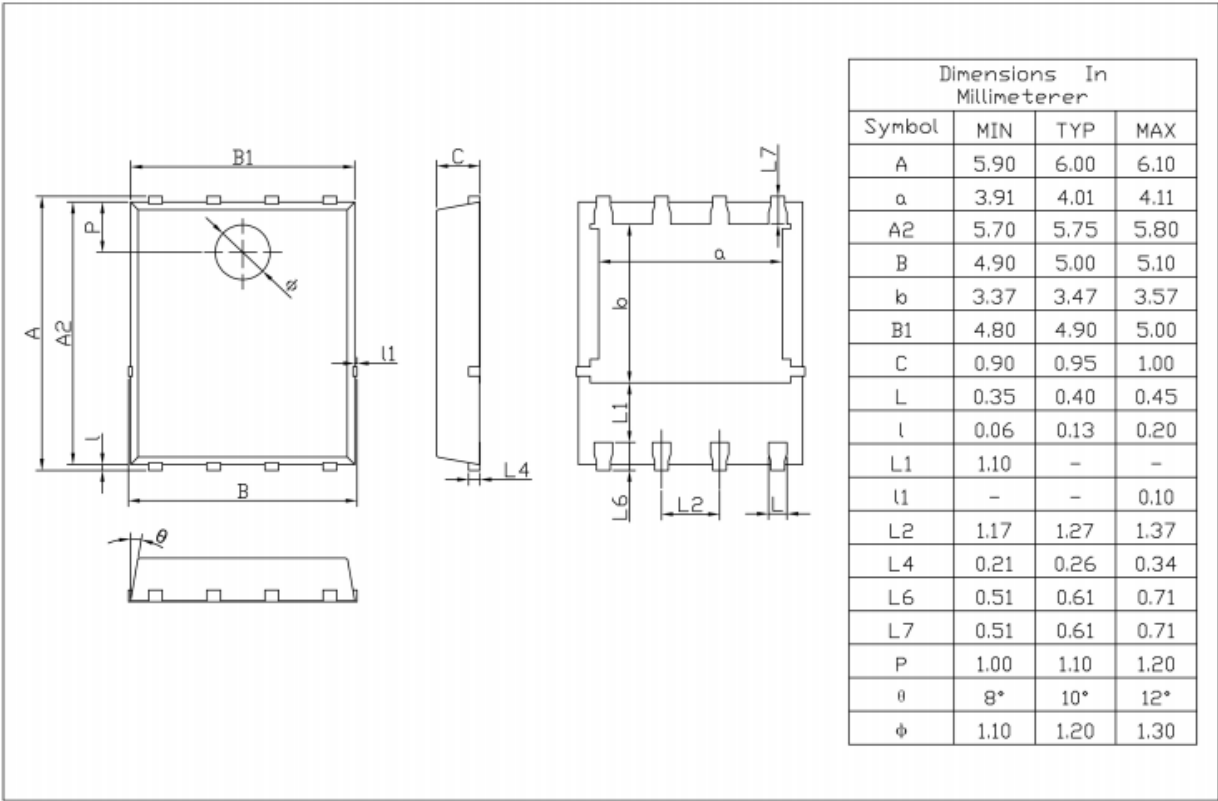


Figure 11: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

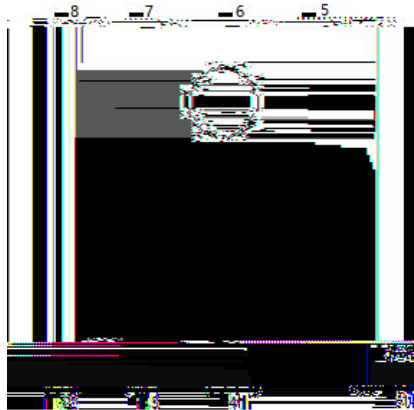
PDFN5 X6

Unit:mm



Rev.00 201812

/ Marking Instructions



BR

016N03

Note:

BR: Company Code

Q: Automobile halogen-free product Code

016N03: Product Type Code

****: 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