

**DESCRIPTION**

The AM30R016PH is available in TOLL8 Package.

BVDSS	RDSON	ID
300V	16mΩ	130A

APPLICATION

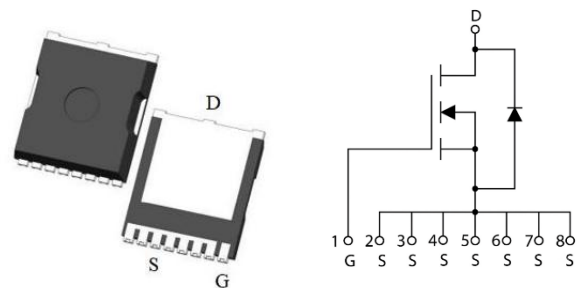
- PWM Application
- Hard switched and high frequency circuits
- Power Management

ORDERING INFORMATION

Package Type	Part Number	
TOLL8	PH8	AM30R016PH8
Note	SPQ: 1,200pcs/Reel	
AiT provides all RoHS products		

FEATURE

- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- $R_{DS(ON)}$, Typ= 16mΩ @ $V_{GS}=10V$
- 100% Single Pulse avalanche energy Test

PIN DESCRIPTION

Pin#	Symbol	Function
1	G	Gate
2,3,4,5,6,7,8	S	Source
9	D	Drain

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	300	V
Gate-to-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	130	A
Continuous Drain Current $T_C = 100^\circ\text{C}$		87	A
Pulsed Drain Current	I_{DM}	520	A
Single Pulse Avalanche Energy ¹	E_{AS}	1264	mJ
Power Dissipation	P_D	289	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.43	°C/W

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**ELECTRICAL CHARACTERISTICS**T_A = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	300	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =240V, V _{GS} =0V	-	-	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±30V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	3	4	5	V
Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =35A	-	16	20	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 50V f = 1.0MHz	-	5408	-	pF
Output Capacitance	C _{oss}		-	824	-	
Reverse Transfer Capacitance	C _{rss}		-	2.6	-	
Total Gate Charge	Q _g	V _{DS} =100V, I _D =40A, V _{GS} = 10V	-	83	-	nC
Gate-Source Charge	Q _{gs}		-	25	-	
Gate-Drain Charge	Q _{gd}		-	29	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =100V, I _D =40A, R _G =20Ω	-	23	-	ns
Rise Time	t _r		-	25	-	
Turn-Off Delay Time	t _{d(off)}		-	88	-	
Fall Time	t _f		-	13	-	
Drain-Source Body Diode Characteristics						
Maximum Pulsed Current (Body Diode)	I _{SM}	-	-	-	130	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V	-	-	1.2	V
Reverse Recovery Time	T _{rr}	I _S =40A, T _J = 25°C, di/dt=100A/us	-	112	-	ns
Reverse Recovery Charge	Q _{rr}		-	0.92	-	nC

Note:

1. The test condition is V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_G=25Ω



TYPICAL PERFORMANCE CHARACTERISTICS

Fig1. Typical Output Characteristics

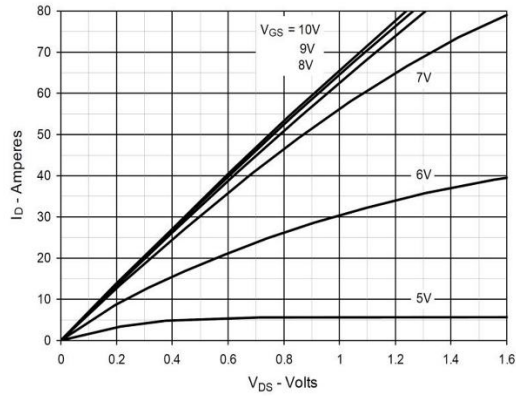


Fig 2. Extended Output Characteristics

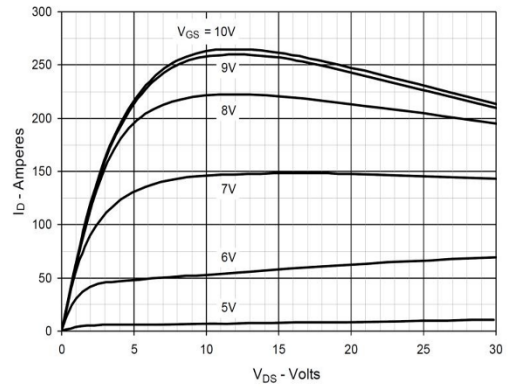


Fig 3. Typical Output Characteristics

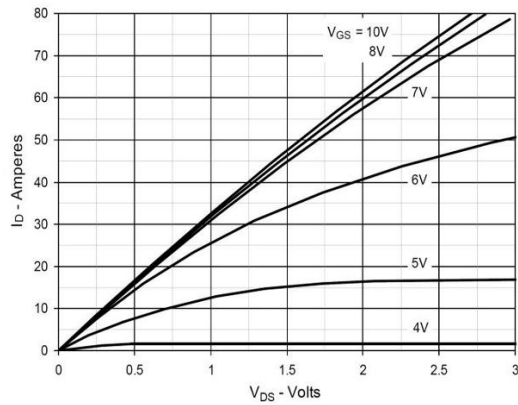


Fig 4. $R_{DS(on)}$ vs. Junction Temperature

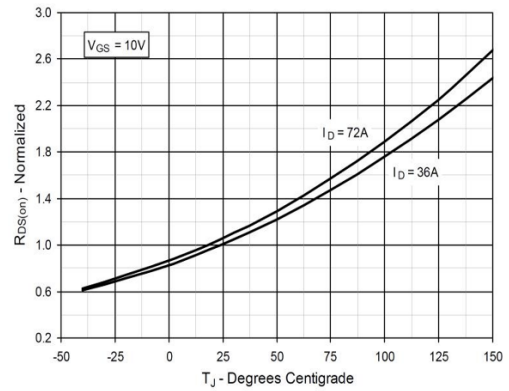


Fig 5. $R_{DS(on)}$ vs. Drain Current

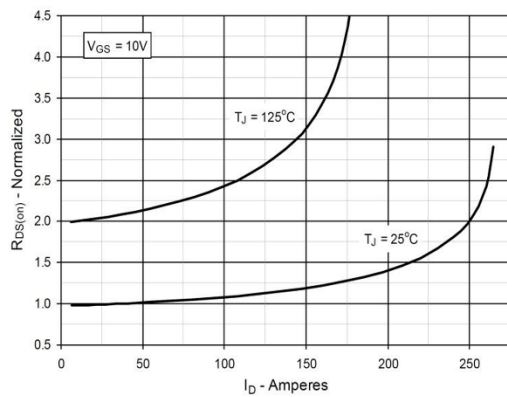


Fig 6. Normalized Breakdown & Threshold Voltages vs. Junction Temperature

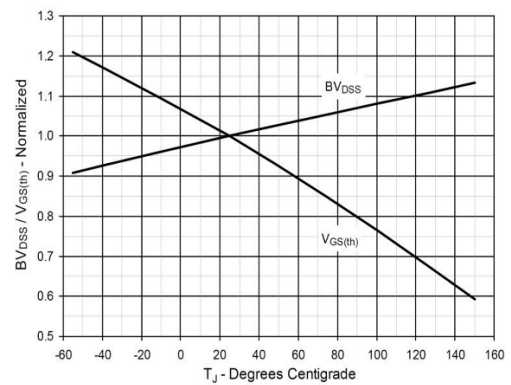




Fig7. Maximum Drain Current vs. Case Temperature

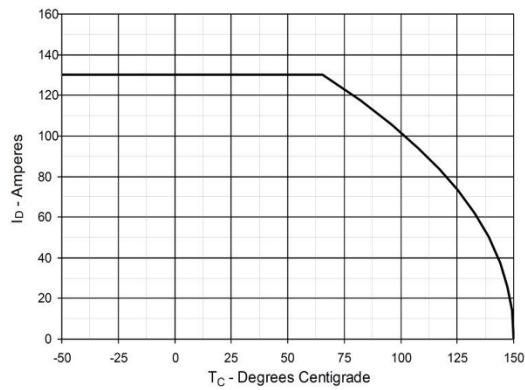


Fig 8. Input Admittance

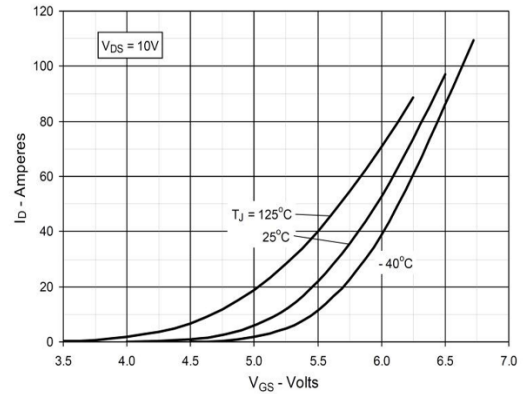


Fig 9. Transconductance

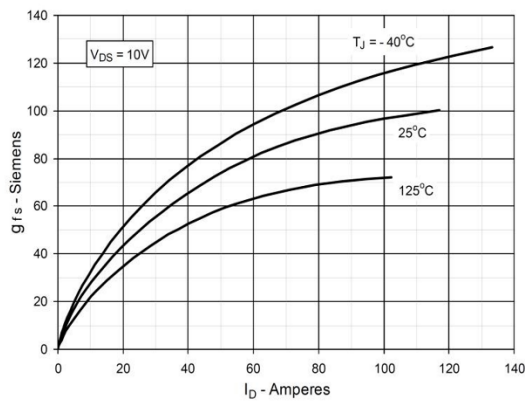


Fig 10. Forward Voltage Drop of Intrinsic Diode

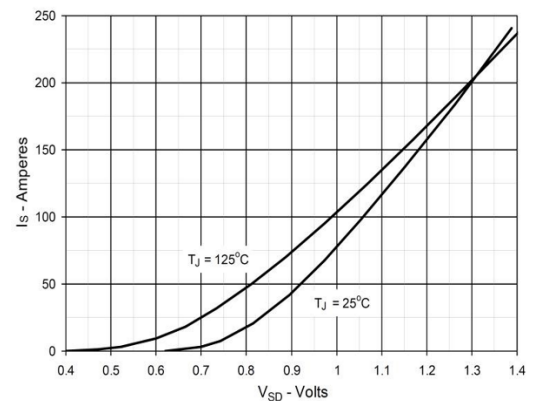


Fig 11. Gate Charge

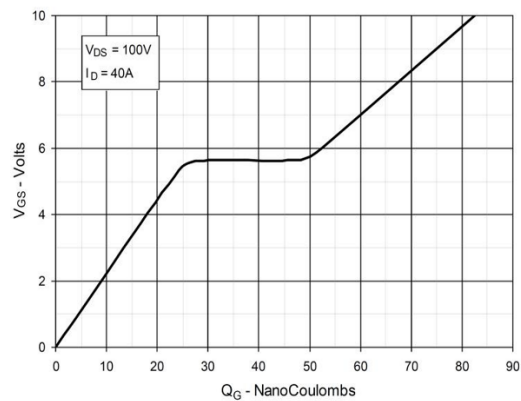


Fig 12. Typical Capacitance vs Drain-to-Source Voltage

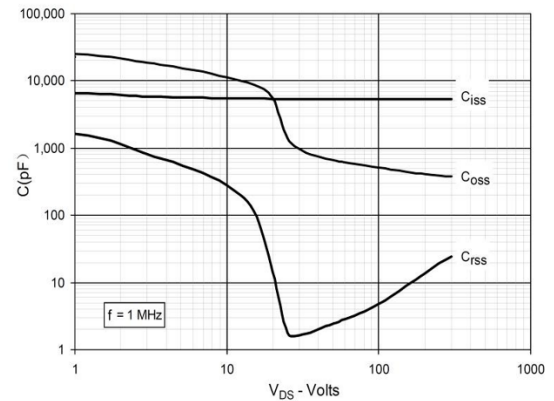




Fig13. Output Capacitance Stored Energy

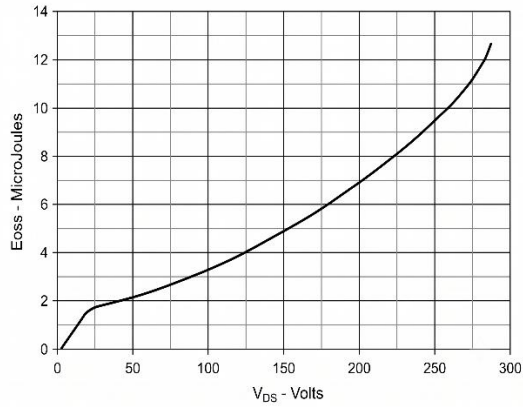


Fig 14. Forward-Bias Safe Operating Area

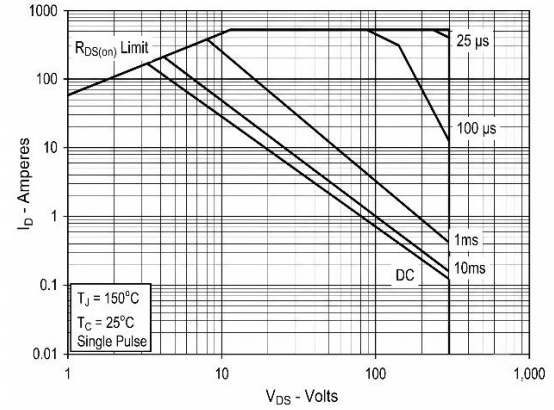
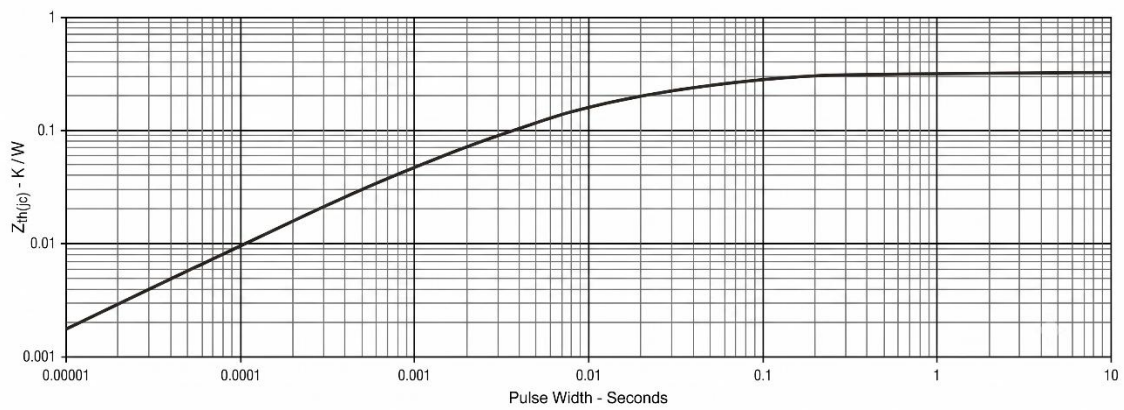
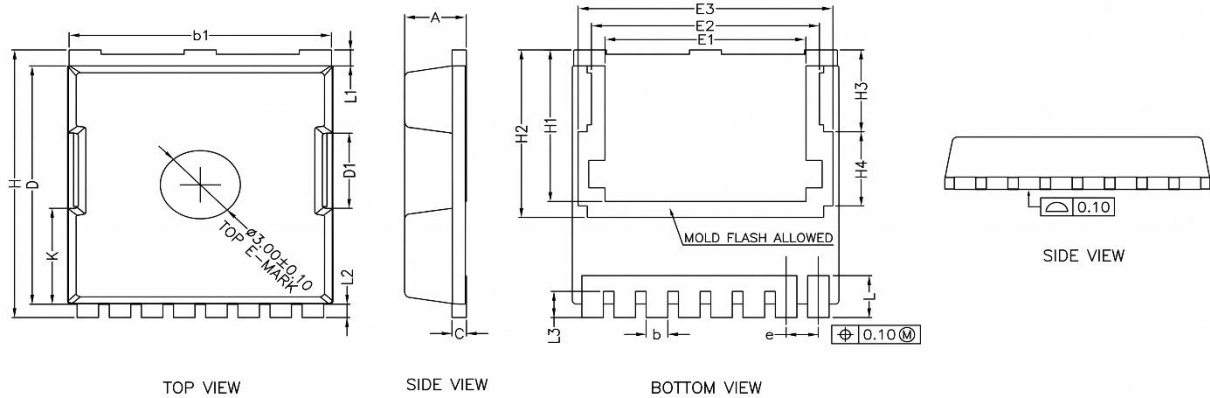


Fig 15. Maximum Transient Thermal Impedance



**PACKAGE INFORMATION**

Dimension in TOLL8 (Unit: mm)



Symbol	Millimeters	
	Min	Max
A	2.200	2.400
b	0.700	0.900
b1	9.700	9.900
C	0.400	0.600
D	10.280	10.580
D1	3.150	3.450
E	9.700	10.100
E1	7.350	7.650
E2	8.350	8.650
E3	9.310	9.610
e	1.100	1.300
H	11.480	11.880
H1	6.550	6.750
H2	7.200	7.500
H3	3.440	3.740
H4	3.110	3.410
K	4.030	4.330
L	1.600	2.100
L1	0.550	0.850
L2	0.450	0.750
L3	1.000	1.300

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