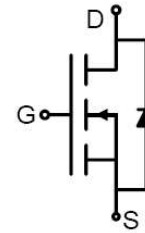


Feature

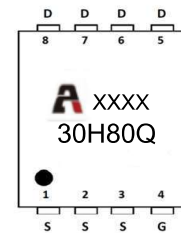
- 30V,70A
 $R_{DS(ON)} < 6m\Omega @ V_{GS}=10V$
 $R_{DS(ON)} < 12m\Omega @ V_{GS}=4.5V$
- Advanced Trench Technology
- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge



Schematic Diagram

Application

- PWM applications
- Load Switch
- Power management



Marking and pin Assignment

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
30H80Q	AP30H80Q	PDFN3X3-8L	13 inch	-	5000

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_a=25^\circ\text{C}$)	I_D	70	A
Continuous Drain Current ($T_a=100^\circ\text{C}$)	I_D	46	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	280	A
Singel Pulsed Avalanche Energy ⁽²⁾	E_{AS}	56	mJ
Power Dissipation	P_D	46	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	2.72	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	4.8	6.0	mΩ
		V _{GS} =4.5V, I _D =20A	-	7.5	12	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz	-	1614	-	pF
Output Capacitance	C _{oss}		-	245	-	
Reverse Transfer Capacitance	C _{rss}		-	215	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =15V, I _D =30A, V _{GS} =10V, R _G =3Ω	-	7.5	-	ns
Turn-on rise time	t _r		-	14.5	-	
Turn-off delay time	t _{d(off)}		-	35.2	-	
Turn-off fall time	t _f		-	9.6	-	
Total Gate Charge	Q _g	V _{DS} =15V, I _D =30A, V _{GS} =10V	-	33.7	-	nC
Gate-Source Charge	Q _{gs}		-	8.5	-	
Gate-Drain Charge	Q _{gd}		-	7.5	-	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V _{DS}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward current ⁽⁴⁾	I _S		-	-	70	A

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition: T_J=25°C, V_{DD}=15V, R_G=25 Ω, L=0.5mH, I_{AS}=15A
3. Pulse Test: pulse width≤300μs, duty cycle≤2%
4. Surface Mounted on FR4 Board, t≤10 sec

Typical Performance Characteristics

Figure 1: Output Characteristics

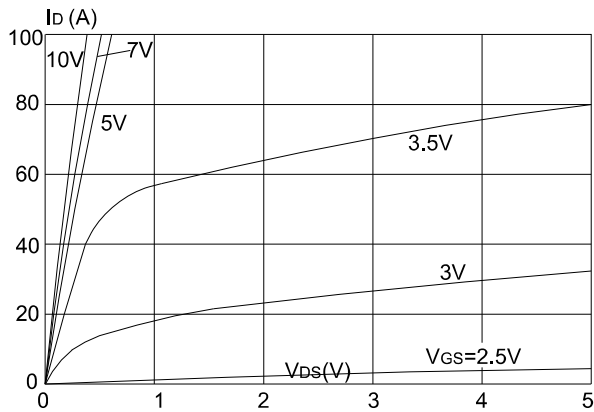


Figure 2: Typical Transfer Characteristics

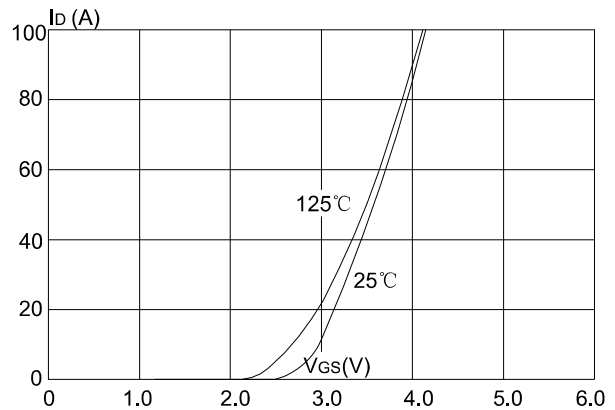


Figure 3: On-resistance vs. Drain Current

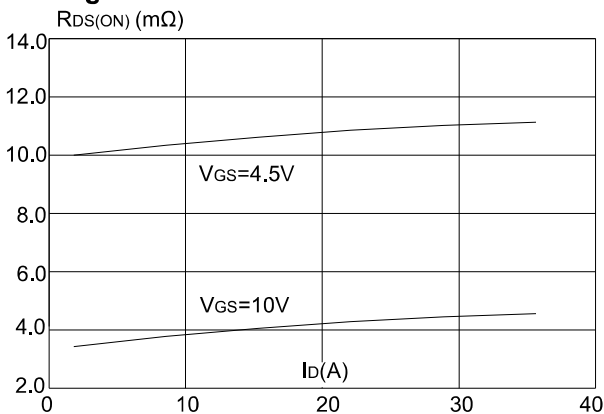


Figure 4: Body Diode Characteristics

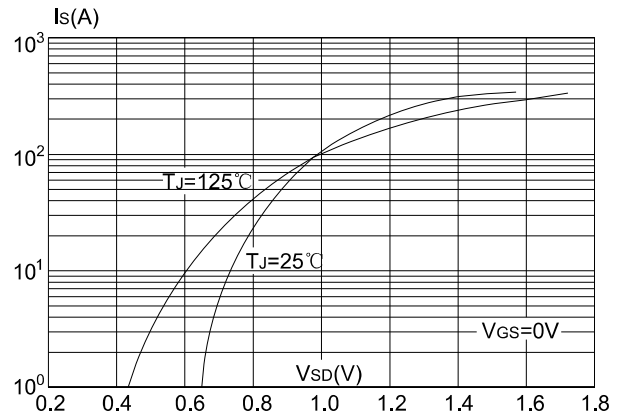


Figure 5: Gate Charge Characteristics

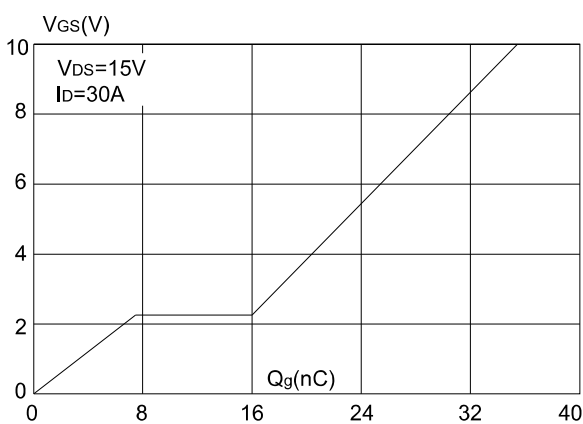


Figure 6: Capacitance Characteristics

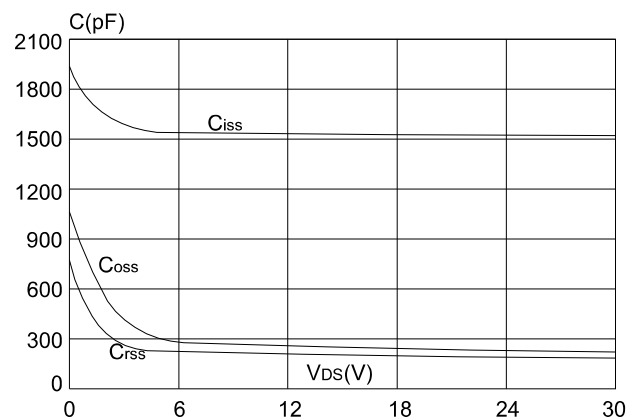


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

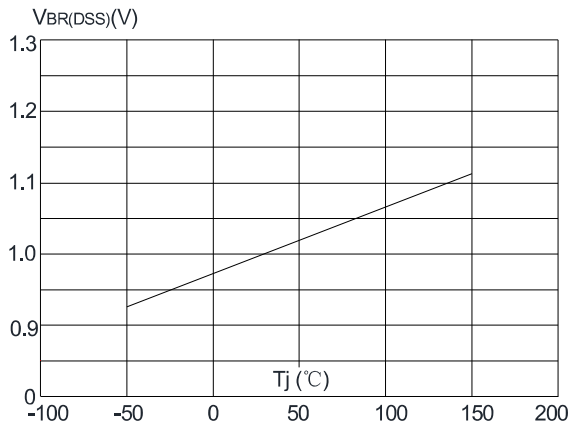


Figure 8: Normalized on Resistance vs. Junction Temperature

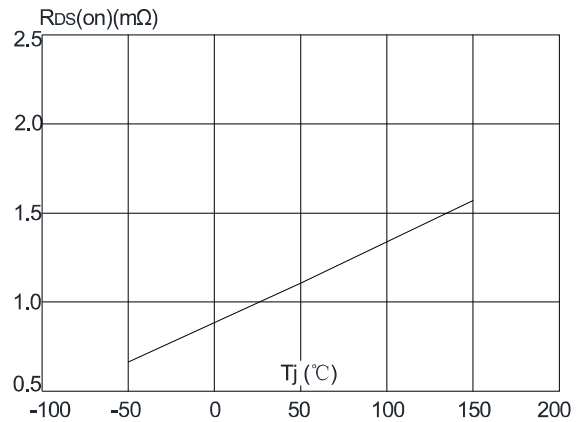


Figure 9: Maximum Safe Operating Area

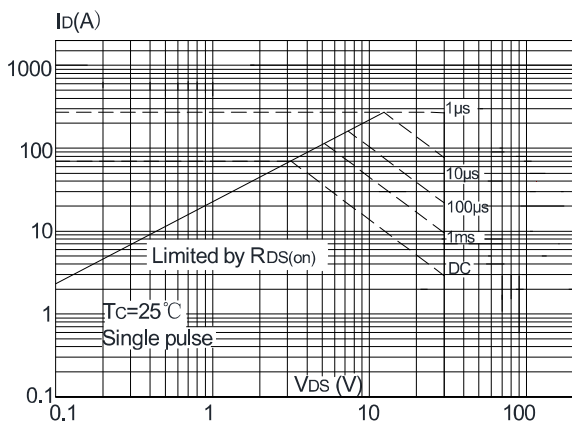


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

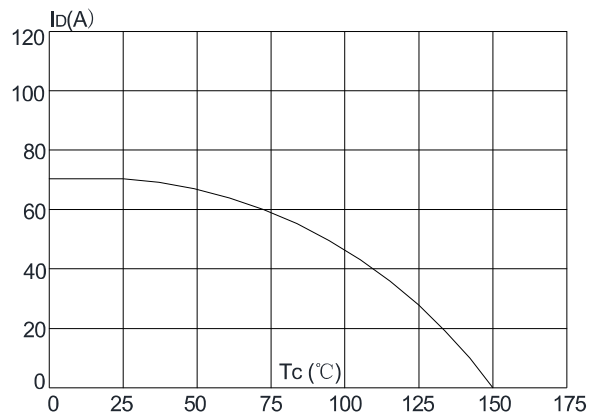
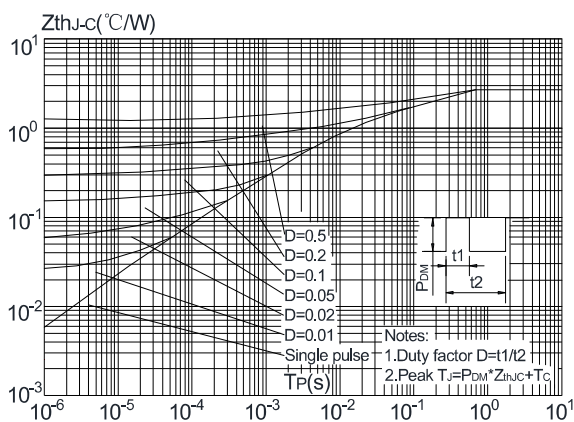


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Test Circuit

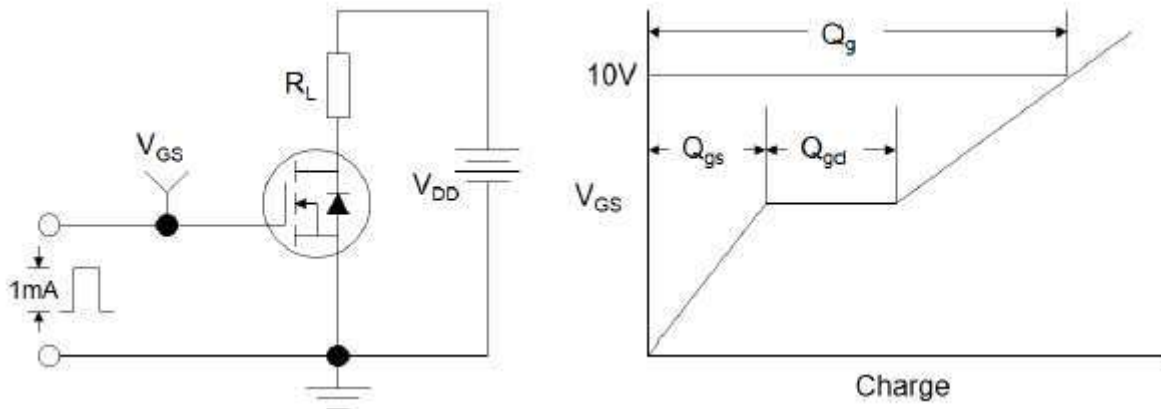


Figure1:Gate Charge Test Circuit & Waveform

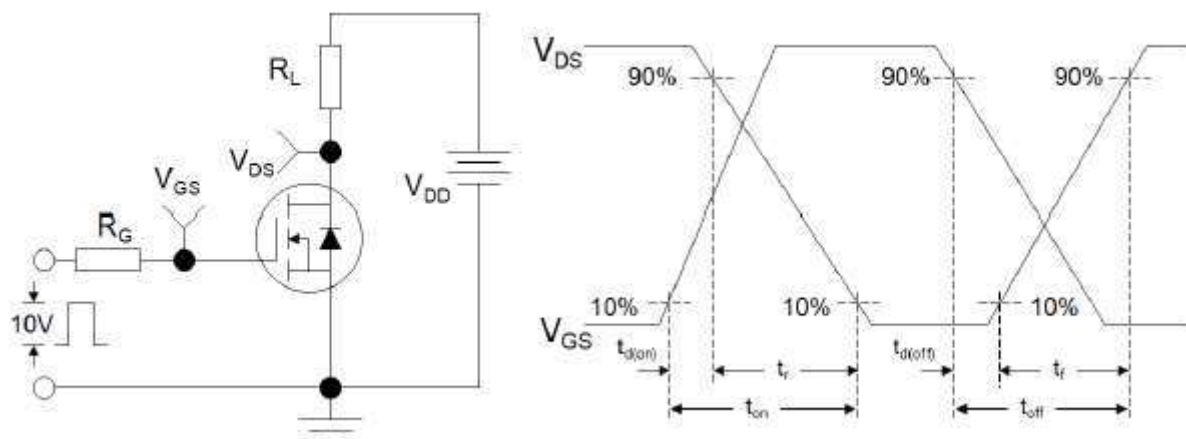


Figure 2: Resistive Switching Test Circuit & Waveforms

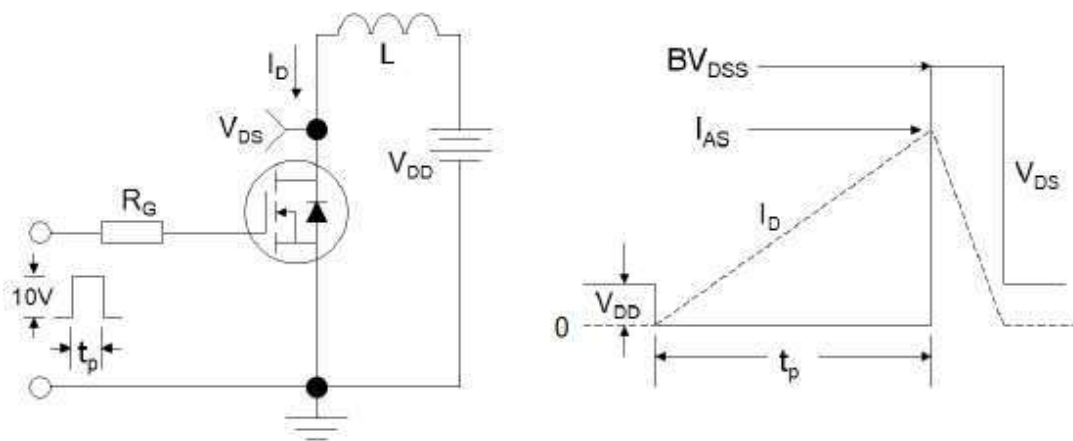


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

AP30H80Q
N-Channel Enhancement Mosfet

PDFN3X3-8L Package Information

