



DESCRIPTION

The AM8881 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. The device is suitable for use as a load switch or in PWM applications. It is ESD protected.

AM8881 is available in a DFN6 (2x5) package.

ORDERING INFORMATION

Package Type	Part Number	
DFN6	J6	AM8881J6R
		AM8881J6VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

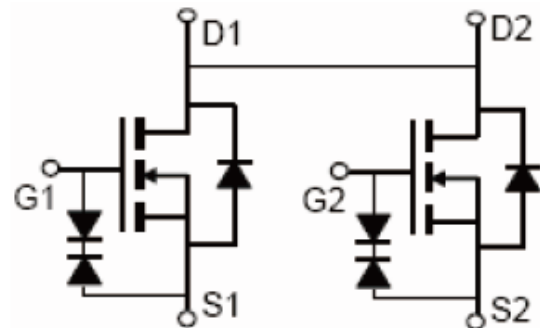
FEATURES

- $V_{DS} = 20V$, $I_D = 11A$
 $R_{DS(ON)} < 7m\Omega @ V_{GS} = 4.5V$
 $R_{DS(ON)} < 9m\Omega @ V_{GS} = 2.5V$
ESD Rating: 2000V HBM
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package
- Available in a DFN6 (2x5) package.

APPLICATION

- PWM application
- Load switch

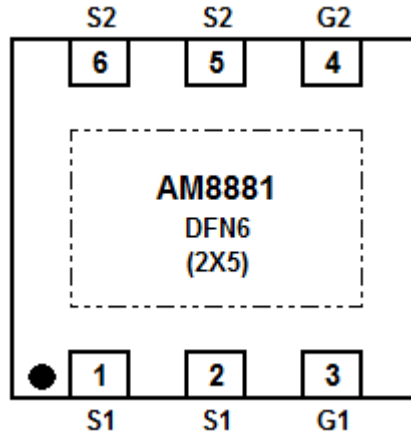
PIN DESCRIPTION



Schematic diagram



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	S1	Source
2	S1	Source
3	G1	Gate
4	G2	Gate
5	S2	Source
6	S2	Source



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V _{DS} , Drain-Source Voltage	20V
V _{GS} , Gate-Source Voltage	±10V
I _D , Drain Current-Continuous	11A
I _{DM} , Drain Current-Pulsed ^{NOTE1}	44A
P _D , Maximum Power Dissipation	1.6W
T _J , T _{STG} , Operating Junction and Storage Temperature Range	-55°C~150°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Ambient ^{NOTE2}	R _{θJA}	78	°C/W



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V	-	-	±10	μA
On Characteristics NOTE3						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.6	0.8	1.2	V
Drain-Source On-state Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =10A	-	5.5	7	mΩ
		V _{GS} =2.5V, I _D =5.5A	-	7	9	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =11A	25	-	-	S
Dynamic Characteristics NOTE3						
Input Capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0V, F=1.0MHz	-	1810	-	pF
Output Capacitance	C _{OSS}		-	232	-	
Reverse Transfer Capacitance	C _{RSS}		-	200	-	
Switching Characteristics NOTE3						
Turn-on Delay Time	t _{D(ON)}	V _{DD} =10V, R _L =1Ω, V _{GS} =10V, R _{GEN} =3Ω	-	2.5	-	ns
Turn-on Rise Time	t _R		-	7.2	-	
Turn-off Delay Time	t _{D(OFF)}		-	49	-	
Turn-off Fall Time	t _F		-	10.8	-	
Total Gate Charge	Q _G	V _{DS} =10V, I _D =11A, V _{GS} =4.5V	-	17.5	-	nC
Gate-Source Charge	Q _{GS}		-	1.5	-	
Gate-Drain Charge	Q _{GD}		-	4.5	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward Current	I _S		-	-	11	A

NOTE1: Repetitive Rating: Pulse width limited by maximum junction temperature

NOTE2: Surface Mounted on FR4 Board, t ≤ 10 sec.

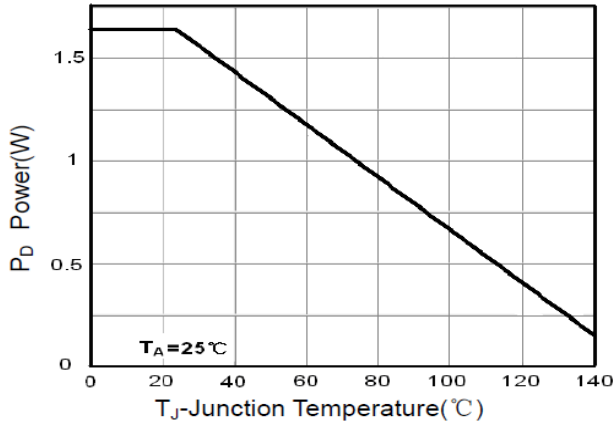
NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

NOTE4: Guaranteed by design, not subject to production

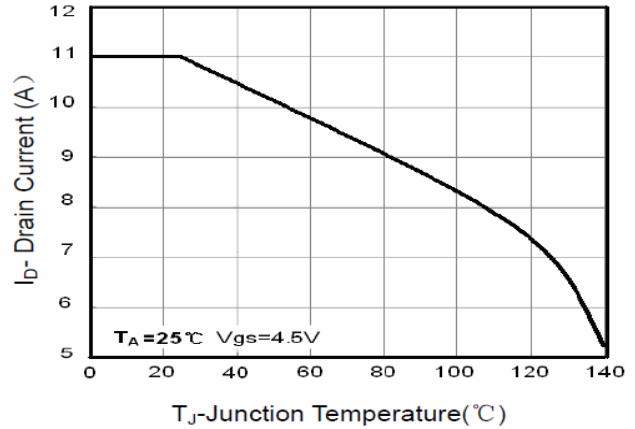


TYPICAL CHARACTERISTICS

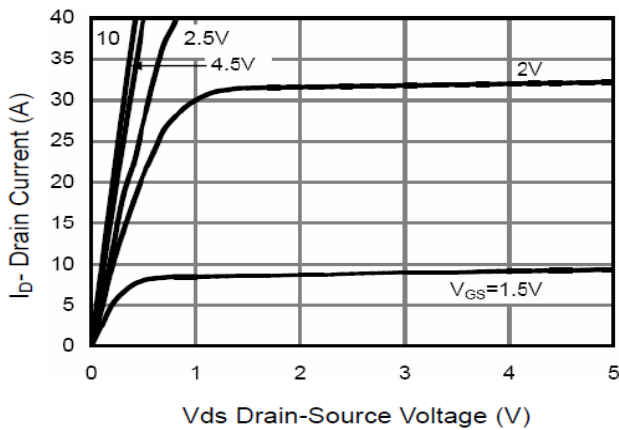
1. Power Dissipation



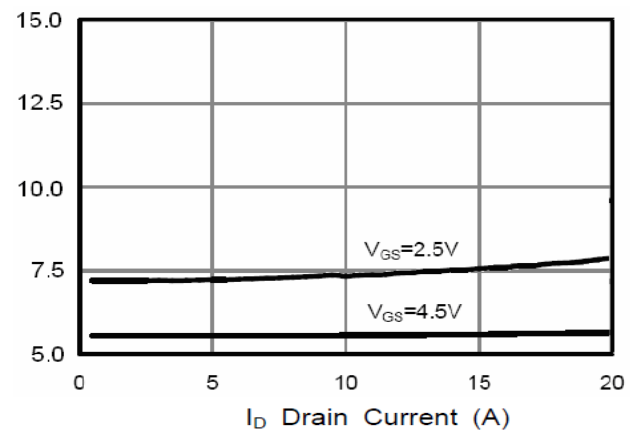
2. Drain Current



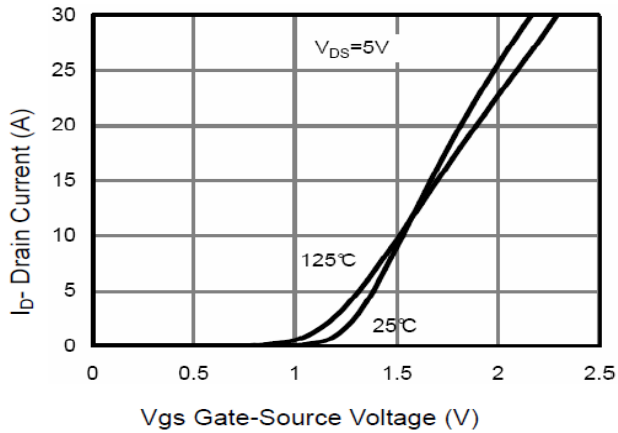
3. Output Characteristics



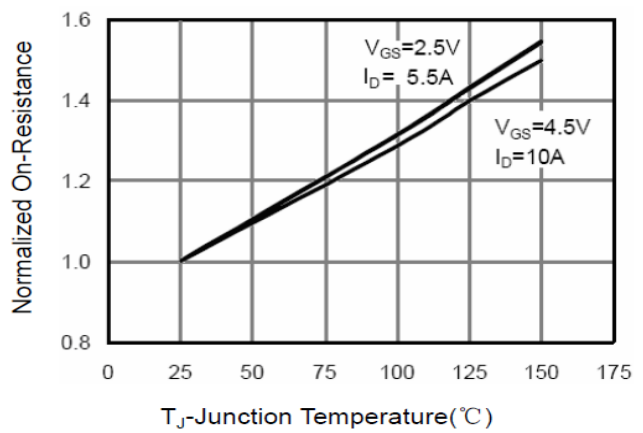
4. Drain-Source On-Resistance



5. Transfer Characteristics

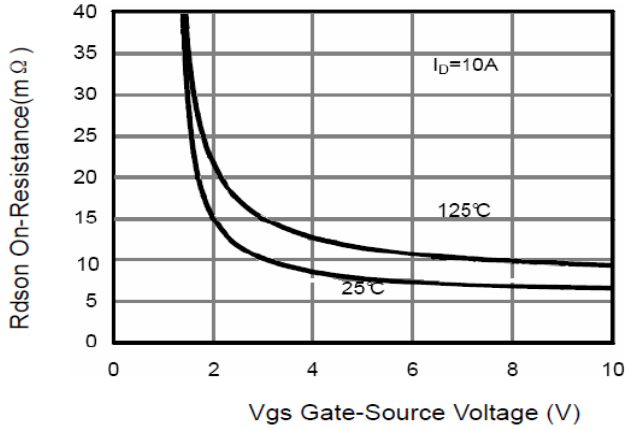


6. Drain-Source On-Resistance

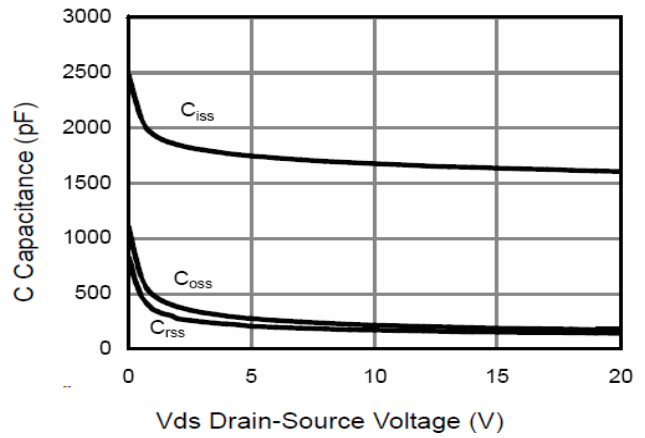




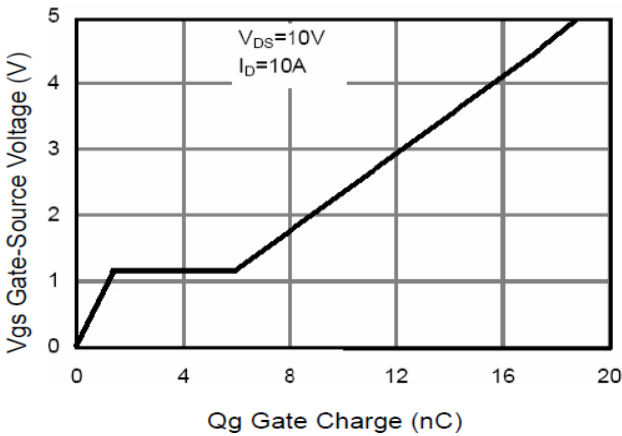
7. $R_{DS(ON)}$ vs. V_{GS}



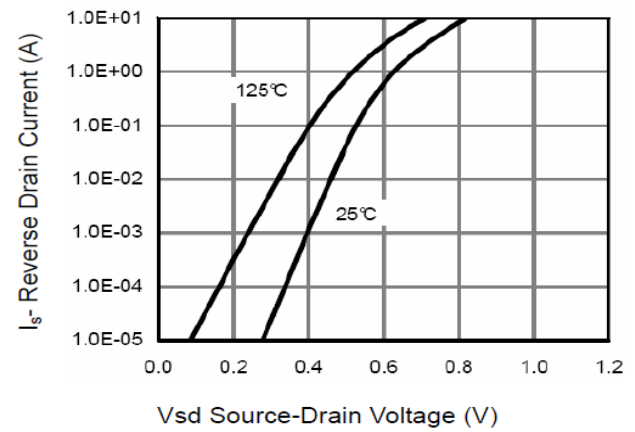
8. Capacitance vs. V_{DS}



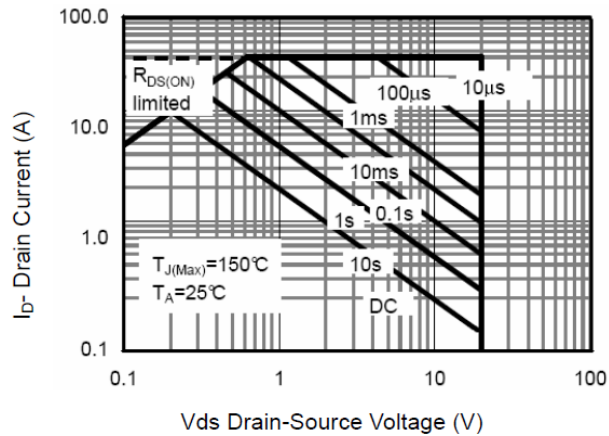
9. Gate Charge



10. Source- Drain Diode Forward

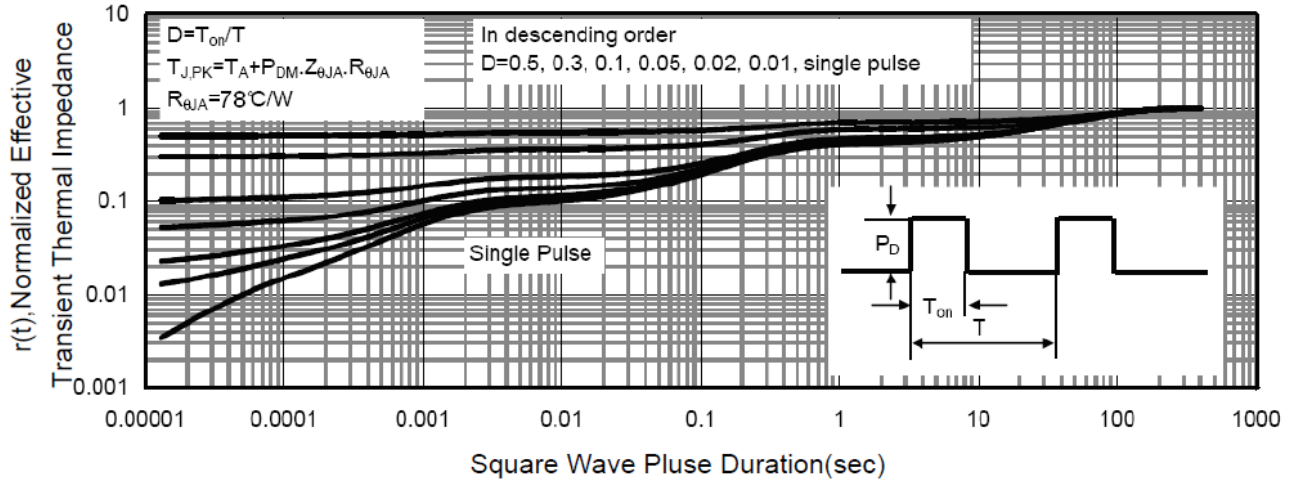


11. Safe Operation Area



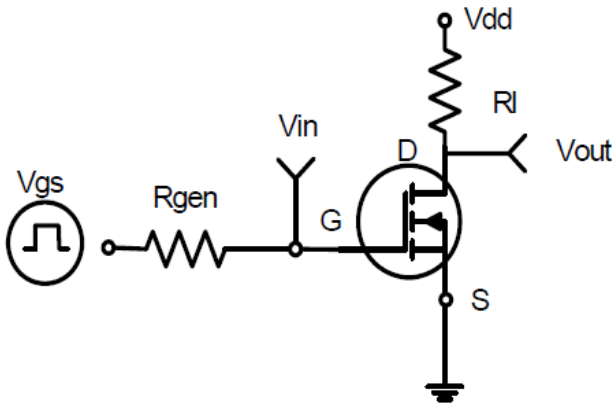


12. Normalized Maximum Transient Thermal Impedance

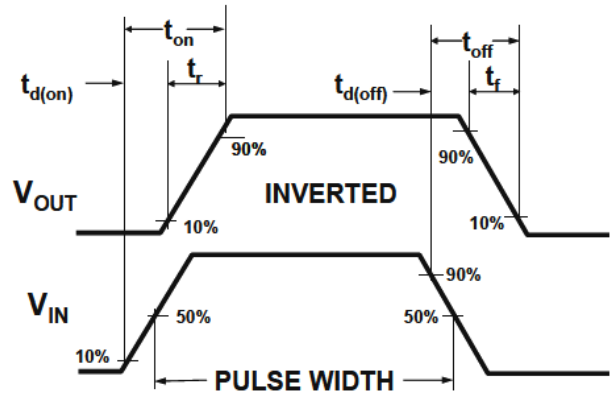


DETAILED INFORMATION

1. Switching Test Circuit



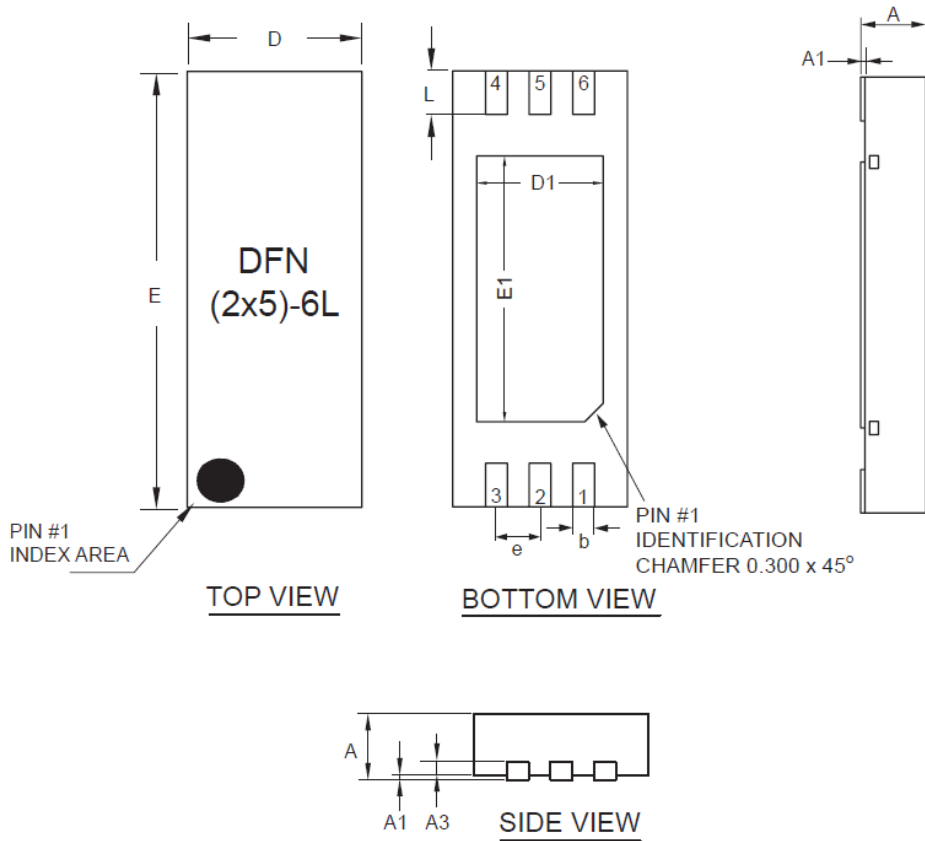
2. Switching Waveforms





PACKAGE INFORMATION

Dimension in DFN6 (Unit: mm)



Symbol	Min	Max
A	0.700	0.800
A1	0.000	0.050
A2	0.203(REF)	
D	1.900	2.100
E	4.900	5.100
D1	1.400	1.500
E1	3.000	3.100
B	0.200	0.300
e	0.500 (BSC)	
L	0.450	0.550



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