

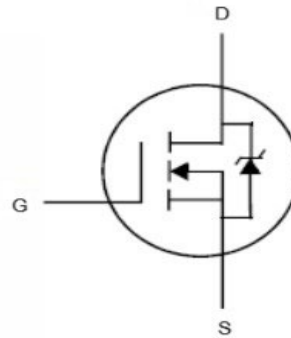
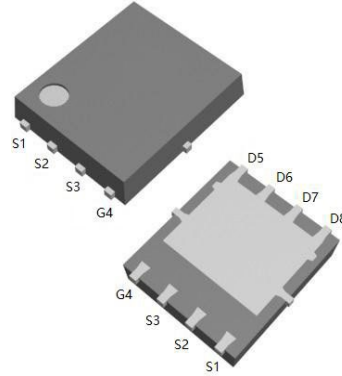


DESCRIPTION

The AM10NS10HPJ8S is available in PDFN8(3x3) Package.

Vds	RDS(ON)	Id
100V	10 mΩ	40A

PIN DESCRIPTION



FEATURE

- Extremely low on-resistance $R_{DS(ON)}$
- Excellent gate charge x $R_{DS(ON)}$ product (FOM)
- Excellent Low Ciss

APPLICATION

- Synchronous Rectification for AC/DC Quick Charger
- Battery management
- UPS

Pin#	Symbol	Function
S1, S2, S3	S	Source
G4	G	Gate
D5, D6, D7, D8	D	Drain

ORDERING INFORMATION

Package Type	Package Code	Part Number
PDFN8 (3x3) SPQ: 5,000pcs/Reel	PJ8S	AM10NS10PJ8SVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

**ABSOLUTE MAXIMUM RATINGS**

V_{DS} , Drain-Source Voltage		100 V
I_D , Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$ (Silicon limit)	77 A
	$T_C = 25\text{ }^\circ\text{C}$ (Package limit)	40 A
	$T_C = 100\text{ }^\circ\text{C}$ (Silicon limit)	49 A
	$T_a = 25\text{ }^\circ\text{C}$	8 A
$I_{D\text{ pulse}}$, Pulsed drain current	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 100\text{ }\mu\text{s}$	160 A
E_{AS} , Avalanche Energy, Single pulse	$L = 0.5\text{ mH}$, $V_{ds} = 50\text{ V}$	36 mJ
V_{GS} , Gate-Source Voltage		$\pm 20\text{ V}$
P_{tot} , Power dissipation	$T_C = 25\text{ }^\circ\text{C}$	125 W
	$T_a = 25\text{ }^\circ\text{C}$	1.4 W
T_J , T_{STG} , Operating junction and storage temperature		$-55\text{ }^\circ\text{C} \sim +150\text{ }^\circ\text{C}$
T_{sold} , Soldering temperature, wave soldering only allowed at leads (1.6mm from case for 10s)		260 $^\circ\text{C}$

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.

THERMAL CHARACTERISTICS

Parameter	Min.	Typ.	Max.	Unit
$R_{\theta JC}$, Thermal resistance, junction – case.	-	0.5	1.0	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$, Thermal resistance, junction – ambient (min. footprint)	-	-	92	$^\circ\text{C}/\text{W}$

**ELECTRICAL CHARACTERISTICS**T_J = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	100	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _{DS} = 250 μA	2	-	4	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V				
		T _J = 25 °C	-	0.02	1	μA
		T _J = 150 °C	-	-	100	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ± 20 V, V _{DS} = 0 V	-	±10	±100	nA
Drain-Source On-state Resistance	R _{DS(ON)}	V _{GS} = 10 V, I _D = 20 A	-	10.0	12.0	mΩ
Transconductance	g _{fs}	V _{DS} = 5 V, I _D = 20 A	-	26	-	S
Dynamic Characteristics ⁽⁵⁾						
Input Capacitance	C _{iss}	V _{GS} = 0 V,	-	1251	-	pF
Output Capacitance	C _{oss}	V _{DS} = 50 V	-	434	-	
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz	-	30	-	
Gate Total Charge	Q _g	V _{GS} = 10 V, V _{DS} = 80 V, I _D = 20 A,		24		nC
Gate-Source Charge	Q _{gs}		-	7	-	
Gate-Drain Charge	Q _{gd}		-	9	-	
Turn-on Delay Time	t _{d(on)}	V _{GS} = 10 V,	-	12	-	ns
Turn-on Rise Time	t _r	V _{DD} = 50 V,	-	38	-	
Turn-Off Delay Time	t _{d(off)}	I _D = 20 A	-	20	-	
Turn-Off Fall Time	t _f	R _{G_ext} = 5 Ω,	-	6	-	
Gate Resistance	R _G	V _{GS} = 0 V, V _{DS} = 0 V f = 1 MHz	-	1.3	-	Ω
Body Diode Characteristics						
Body Diode Forward Voltage	V _{SD}	I _{SD} = 20A, V _{GS} = 0 V	-	0.88	1.2	V
Body Diode Continuous Forward Current	I _S	T _C = 25 °C	-	-	40	A
Body Diode Pulsed Current	I _{S pulse}	T _C = 25 °C	-	-	160	A
Body Diode Reverse Recovery Time	t _{rr}	I _F = 5 A, V _R = 45 V di / dt = 100 A/μs	-	56	-	ns
Body Diode Reverse Recovery Charge	Q _{rr}		-	-	139	-



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

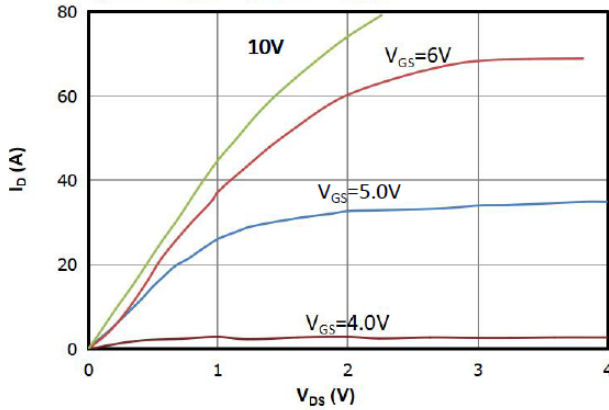


Fig 2. Transfer Characteristics

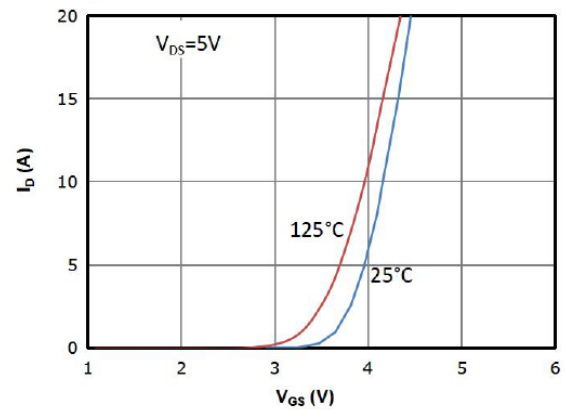


Fig 3. $R_{DS(on)}$ vs. Drain Current and Gate Voltage

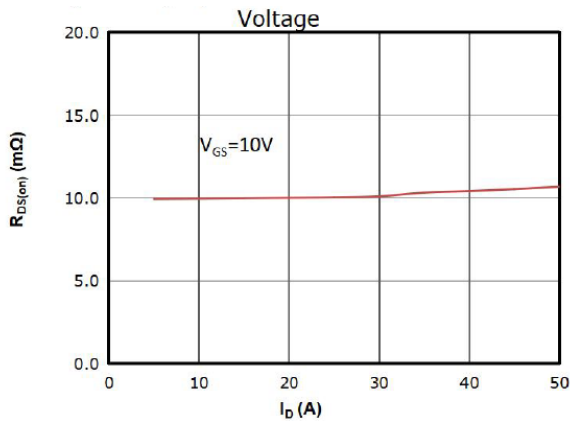


Fig 4. $R_{DS(on)}$ vs. Gate Voltage

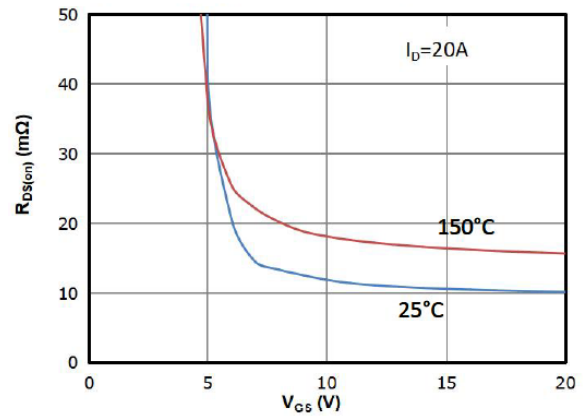


Fig 5. $R_{DS(on)}$ vs. Temperature

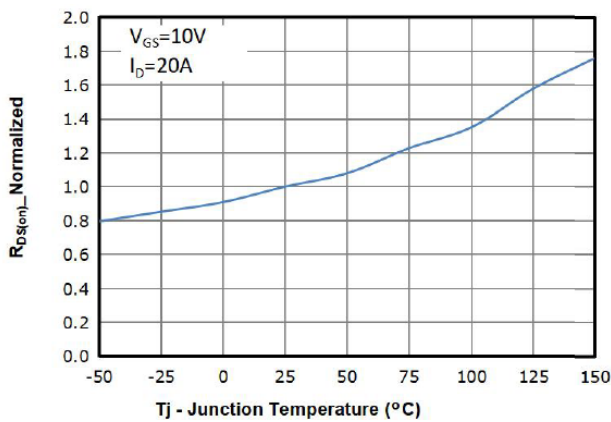


Fig 6. $V_{GS(th)}$ vs. Temperature

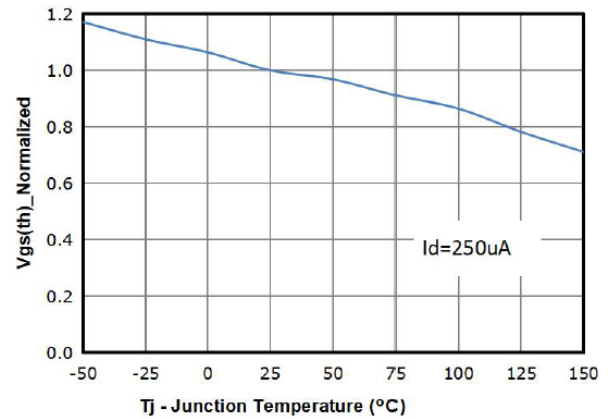




Fig 7. VDS vs. Temperature

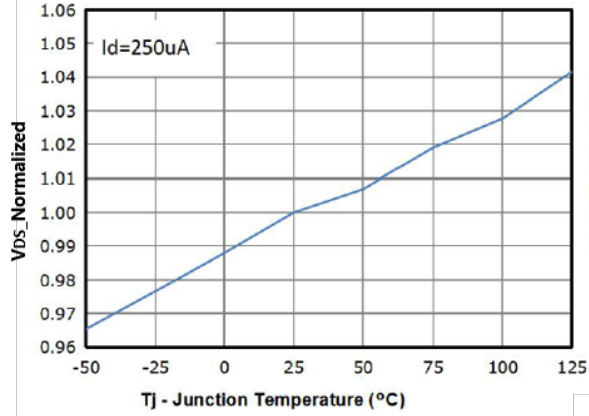


Fig 8. Capacitance Characteristics

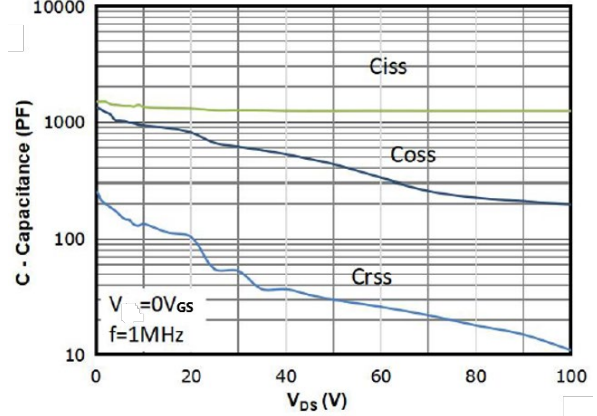


Fig 9. Gate Charge Characteristics

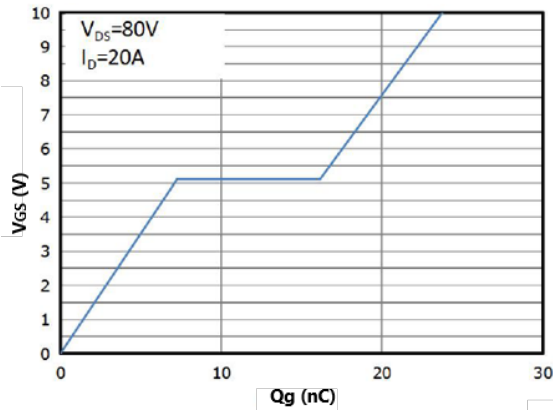


Fig 10. Body-diode Forward Characteristics

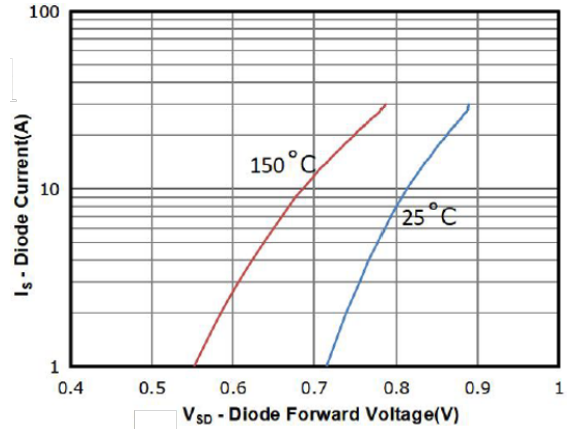


Fig 11. Power Dissipation

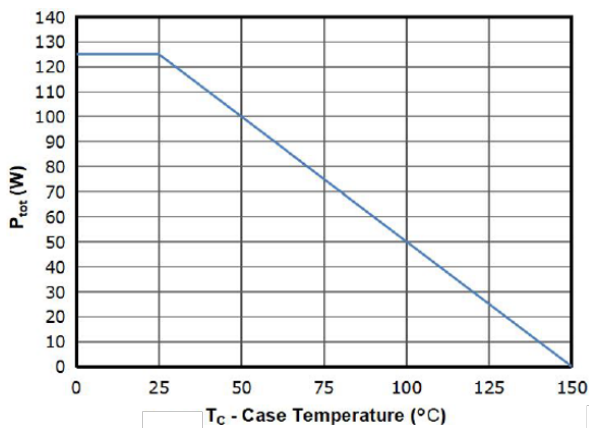


Fig 12. Drain Current Derating

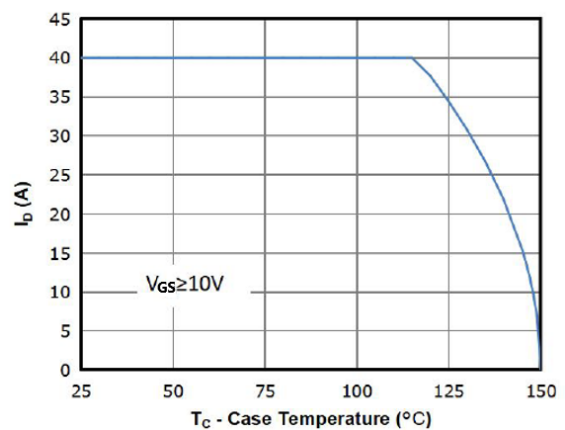




Fig 13. Safe Operating Area

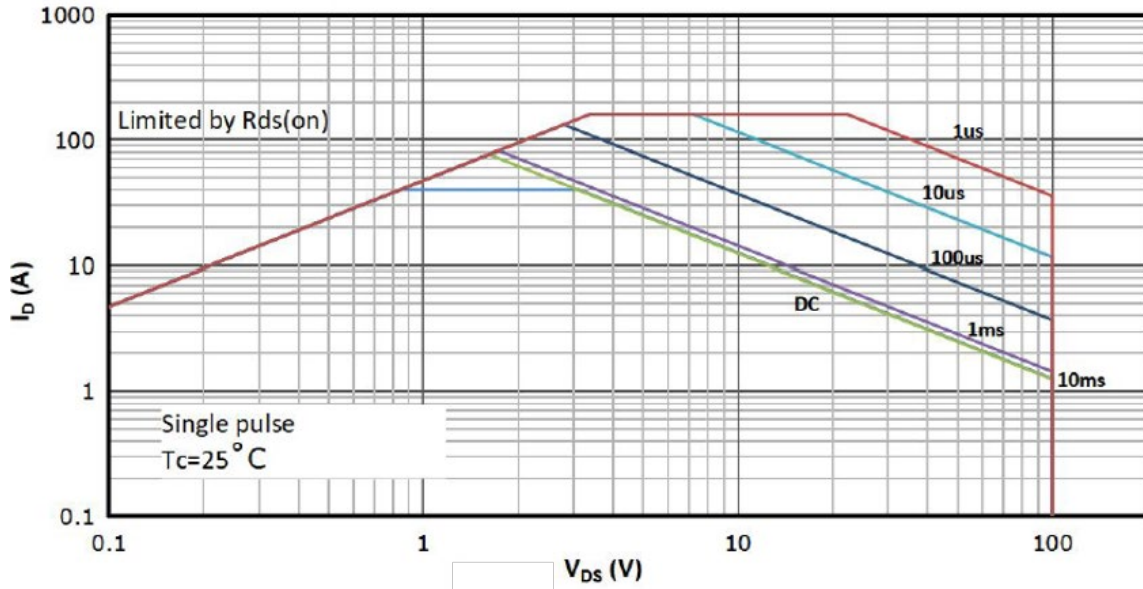
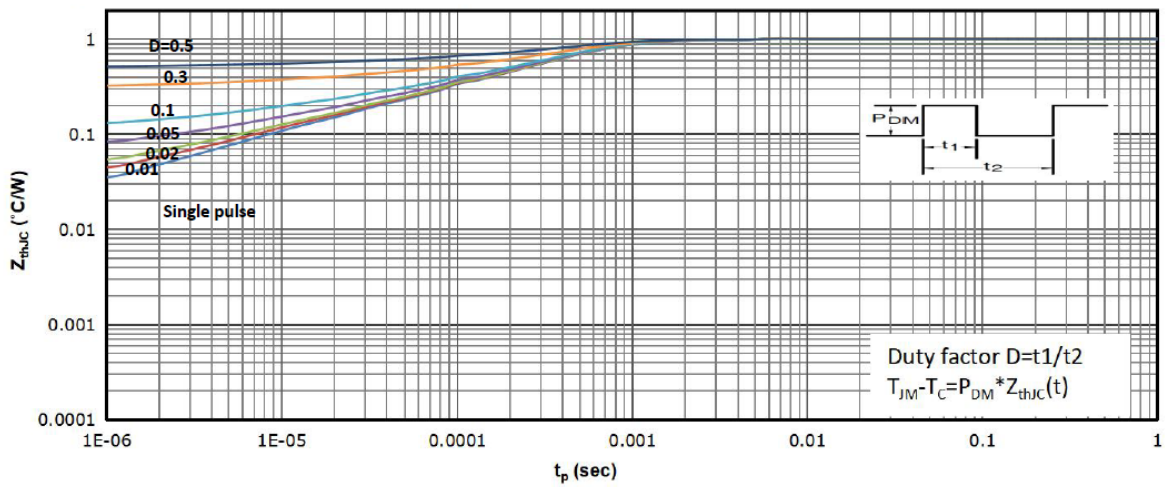


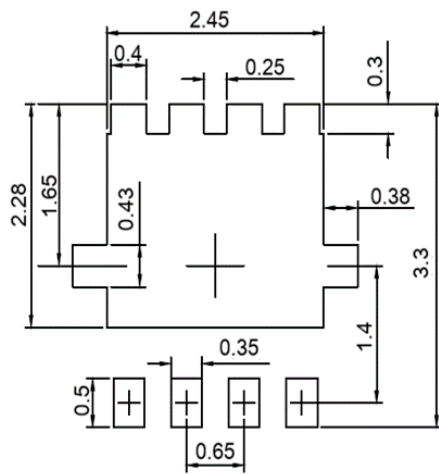
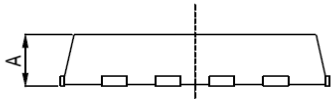
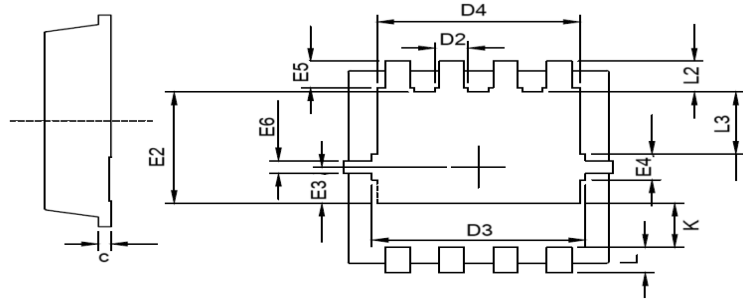
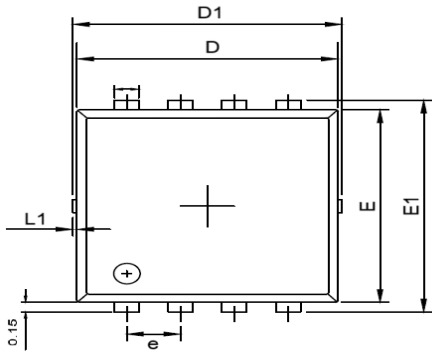
Fig 14. Max. Transient Thermal Impedance





PACKAGE INFORMATION

Dimension in PDFN8 (3x3) (Unit: mm)



Recommended Land Pattern

Symbol	Millimeter	
	Min.	Max.
A	0.700	1.000
b	0.240	0.400
c	0.100	0.250
D	3.000	3.250
D1	3.100	3.500
D2	0.300	0.500
D3	2.500	2.700
D4	2.350	2.550
E	2.900	3.100
E1	3.150	3.450
E2	1.650	1.850
E3	0.480	0.380
E4	0.230	0.500
E5	0.200	0.400
E6	0.075	0.250
e	0.500	0.750
K	0.520	0.820
L	0.250	0.550
L1	0.000	0.100
L2	0.280	0.580
L3	0.880	1.080



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