AT034SN200HPF

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
200V	52mΩ@10V	34A

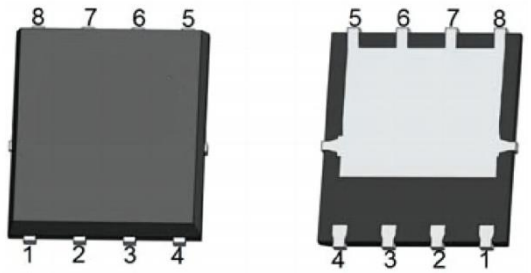
Feature

- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating

Application

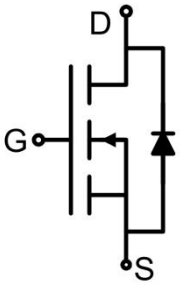
- Power switching application
- Uninterruptible power supply
- DC-DC converter

Package

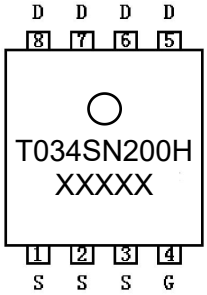


PDFN5*6-8L

Circuit diagram



Marking



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N-Channel Enhancement Mode MOSFET

Absolute maximum ratings (T_C=25℃,unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1,3] (V_{GS}=10V)	I_D	34	A
Continuous Drain Current[1,3] (T_C =100℃,V_{GS}=10V)	I_D （100℃）	21	A
Pulsed Drain Current (t_p≤10μs)	I_{DM}	95	A
Maximum Body-Diode Continuous Current	I_S	34	A
Power Dissipation[1,3]	P_D	139	W
Thermal Resistance,Junction-to-Ambient[2]	$R_{\theta JA}$	54.2	℃/W
Single pulse avalanche energy[4]	E_{AS}	100	mJ
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	200			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =200V,V_{GS} =0V			1	μA
		V_{DS} =200V,V_{GS} =0V,T_J=125℃			100	
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.2	3.0	3.8	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =22A		44	52	mΩ
Gate Resistance	R_G	f =1MHz		1.9		Ω
Dynamic characteristics[5]						
Input Capacitance	C_{iss}	V_{DS} =100V, V_{GS} =0V, f =1MHz		885		pF
Output Capacitance	C_{oss}			102		
Reverse Transfer Capacitance	C_{rss}			3.8		
Total Gate Charge	Q_g	V_{DS} =100V, V_{GS} =10V, I_D =22A		13		nC
Gate-Source Charge	Q_{gs}			4.1		
Gate-Drain Charge	Q_{gd}			2.1		
Turn-on delay time	$t_{d(on)}$	V_{DS}=100V, V_{GS}=10V, I_D =22A, R_{GEN}=3Ω		8.3		nS
Turn-on rise time	t_r			3.6		
Turn-off delay time	$t_{d(off)}$			14.1		
Turn-off fall time	t_f			2.8		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=22A			1.2	V
Reverse recover time	T_{rr}	I_F=22A,di/dt=100A/us,V_{GS}=0V ,V_R=100V		97.6		nS
Reverse recovery charge	Q_{rr}			313		nC

Notes:

1) The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.

2) The value of $R_{\theta JA}$ is measured with the device mounted on the 40mm*40mm*1.1mm single layer FR-4 PCB board with 1 in2 pad of 2oz. Copper, in the still air environment with T_A=25℃.The maximum allowed junction temperature of 150℃. The value in any given application depends on the user's specific board design.

3) Thermal resistance from junction to soldering point (on the exposed drain pad).

4) T_J= 25°C,V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=20A.

5) Guaranteed by design, not subject to production testing.

Typical Characteristics

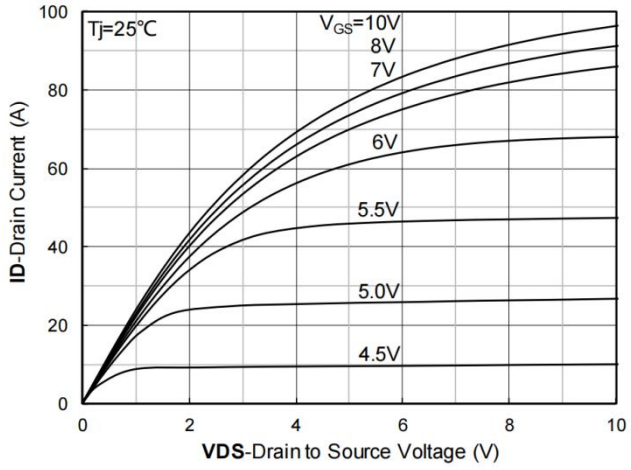


Figure 1. Output Characteristics; typical values

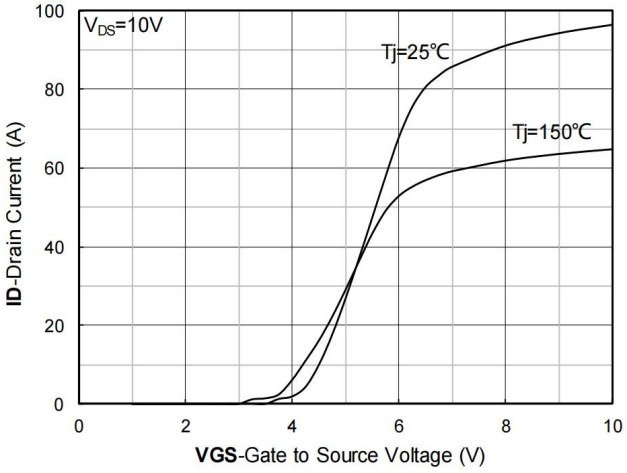


Figure 2. Transfer Characteristics; typical values

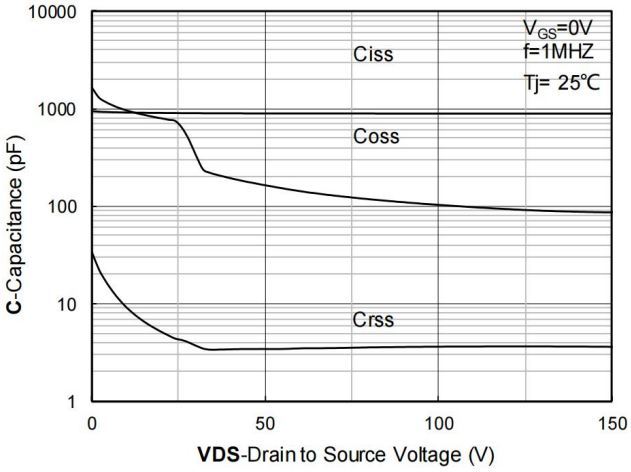


Figure 3. Capacitance Characteristics; typical values

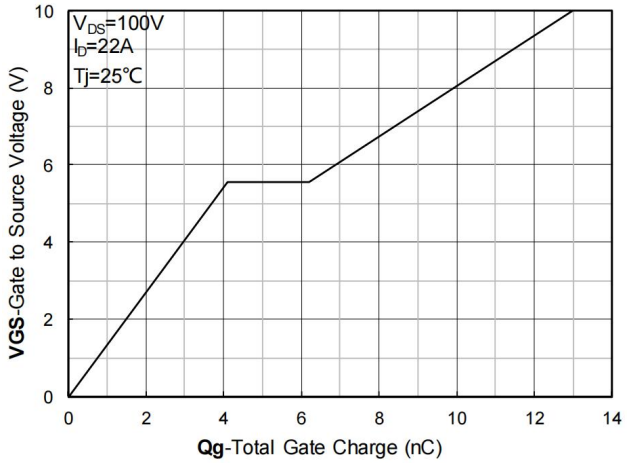


Figure 4. Gate Charge; typical values

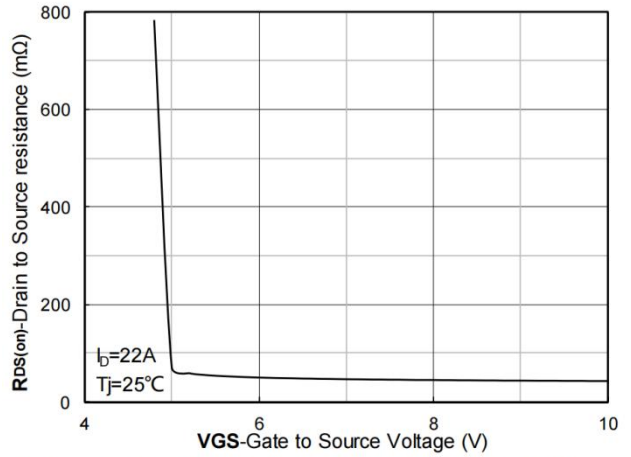


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

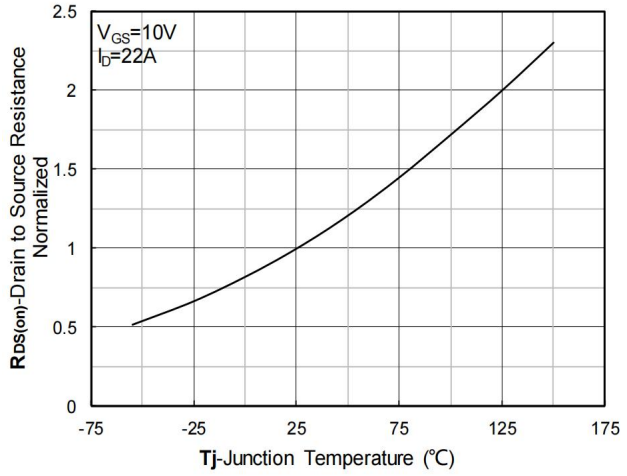


Figure 6. Normalized On-Resistance

Typical Characteristics

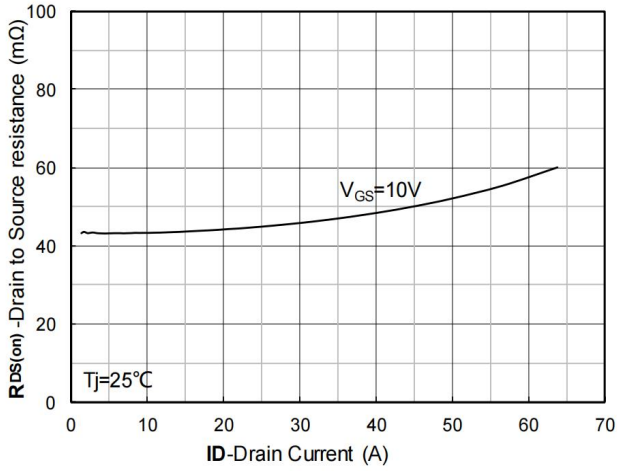


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

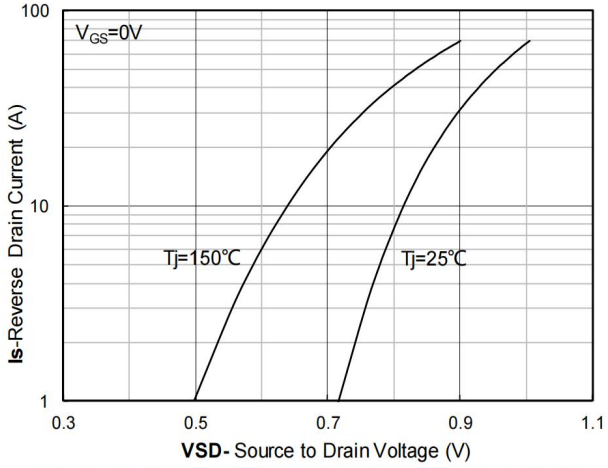


Figure 8. Forward characteristics of reverse diode; typical values

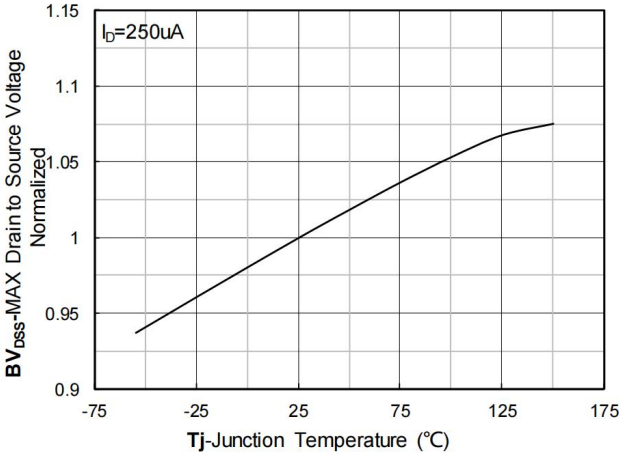


Figure 9. Normalized breakdown voltage

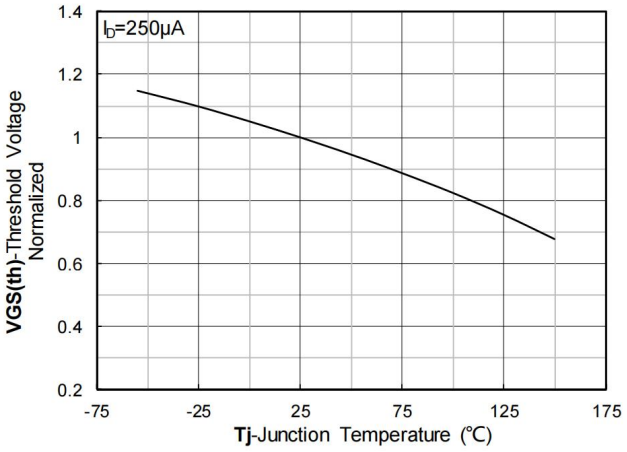


Figure 10. Normalized Threshold voltage

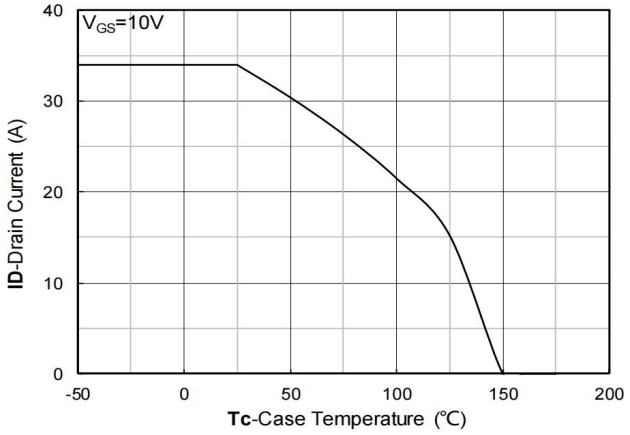


Figure 11. Current dissipation

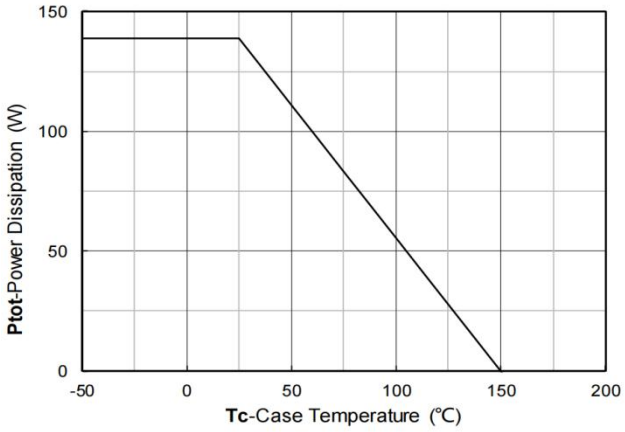


Figure 12. Power dissipation

Typical Characteristics

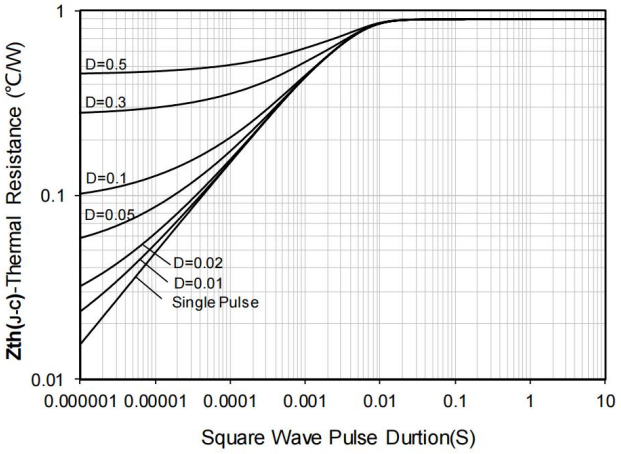


Figure 13. Maximum Transient Thermal Impedance

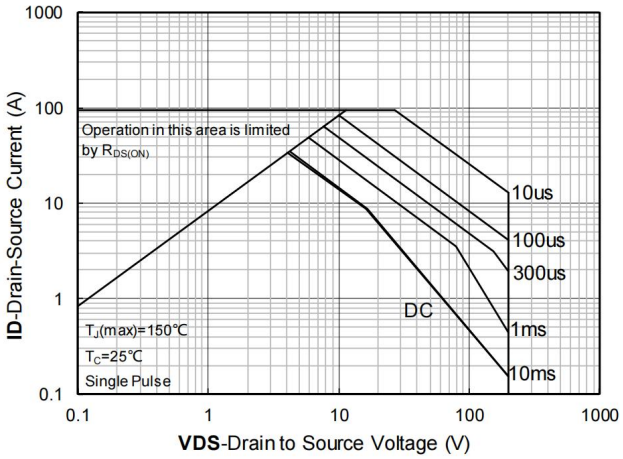
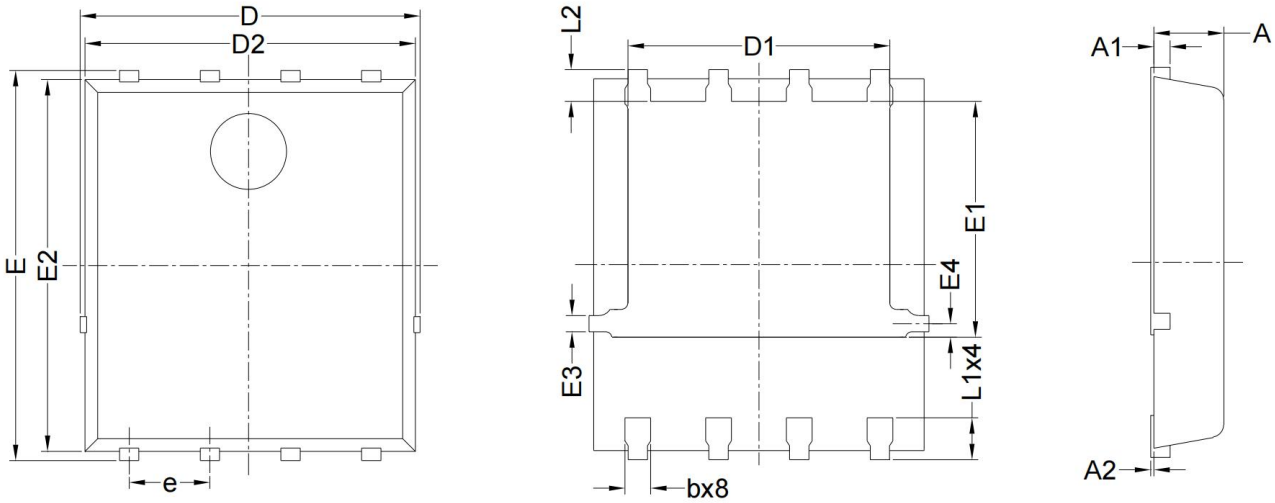


Figure 14. Safe Operation Area

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
D	5.150	5.550	0.203	0.219
E	5.950	6.350	0.234	0.250
A	1.000	1.200	0.039	0.047
A1	0.254 BSC.		0.010 BSC.	
A2	-	0.100	-	0.004
D1	3.920	4.320	0.154	0.170
E1	3.520	3.920	0.139	0.154
D2	5.000	5.400	0.197	0.213
E2	5.660	6.060	0.223	0.239
E3	0.254 REF.		0.010 REF.	
E4	0.210 REF.		0.008 REF.	
L1	0.560	0.760	0.022	0.030
L2	0.500 BSC.		0.020	0.000
b	0.310	0.510	0.012	0.020
e	1.270 BSC.		0.050 BSC.	