TECH PUBLIC
台舟电子

IRF9321TRPbF-TP

P-Channel Enhancement Mode MOSFET

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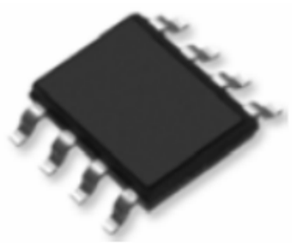
FEATURES

- -30V/-15A,
  $R_{DS(ON)}$ =6.8mΩ(max.) @ V_{GS} =-10V
  $R_{DS(ON)}$ =13mΩ(max.) @ V_{GS} =-4.5V

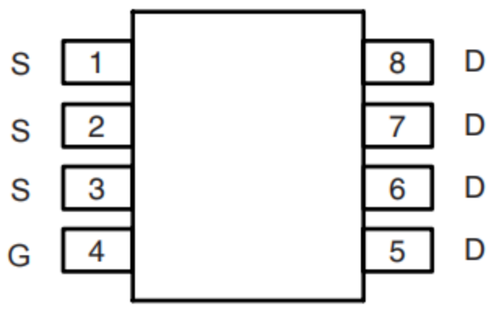
APPLICATIONS

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

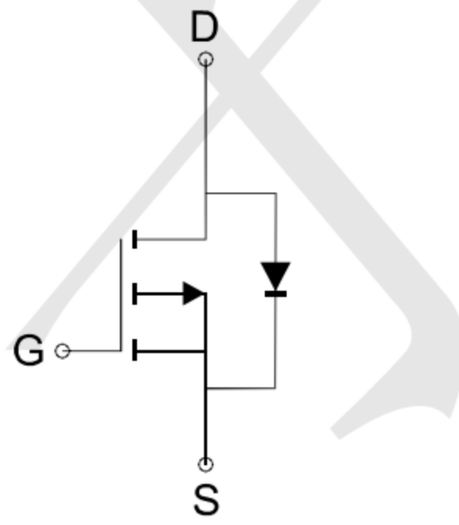
Package and Pin Configuration



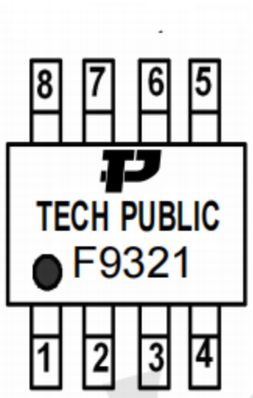
SOP-8 top view



Circuit diagram



Marking:



Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	
I_D[a]	Continuous Drain Current (V_{GS}=-10V)	T_A=25°C	-15	A
		T_A=70°C	-14	
I_{DM}[a]	Pulsed Drain Current (V_{GS}=-10V)		-70	
I_S[a]	Diode Continuous Forward Current		-4	
I_{AS}[b]	Avalanche Current, Single pulse	L=0.1mH	-42	
E_{AS}[b]	Avalanche Energy, Single pulse	L=0.1mH	88	mJ
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	
P_D[a]	Maximum Power Dissipation	T_A=25°C	3.1	W
		T_A=70°C	2	
$R_{\theta JA}$[a,c]	Thermal Resistance-Junction to Ambient	t ≤ 10s	40	°C/W
		Steady State	75	
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	Steady State	24	

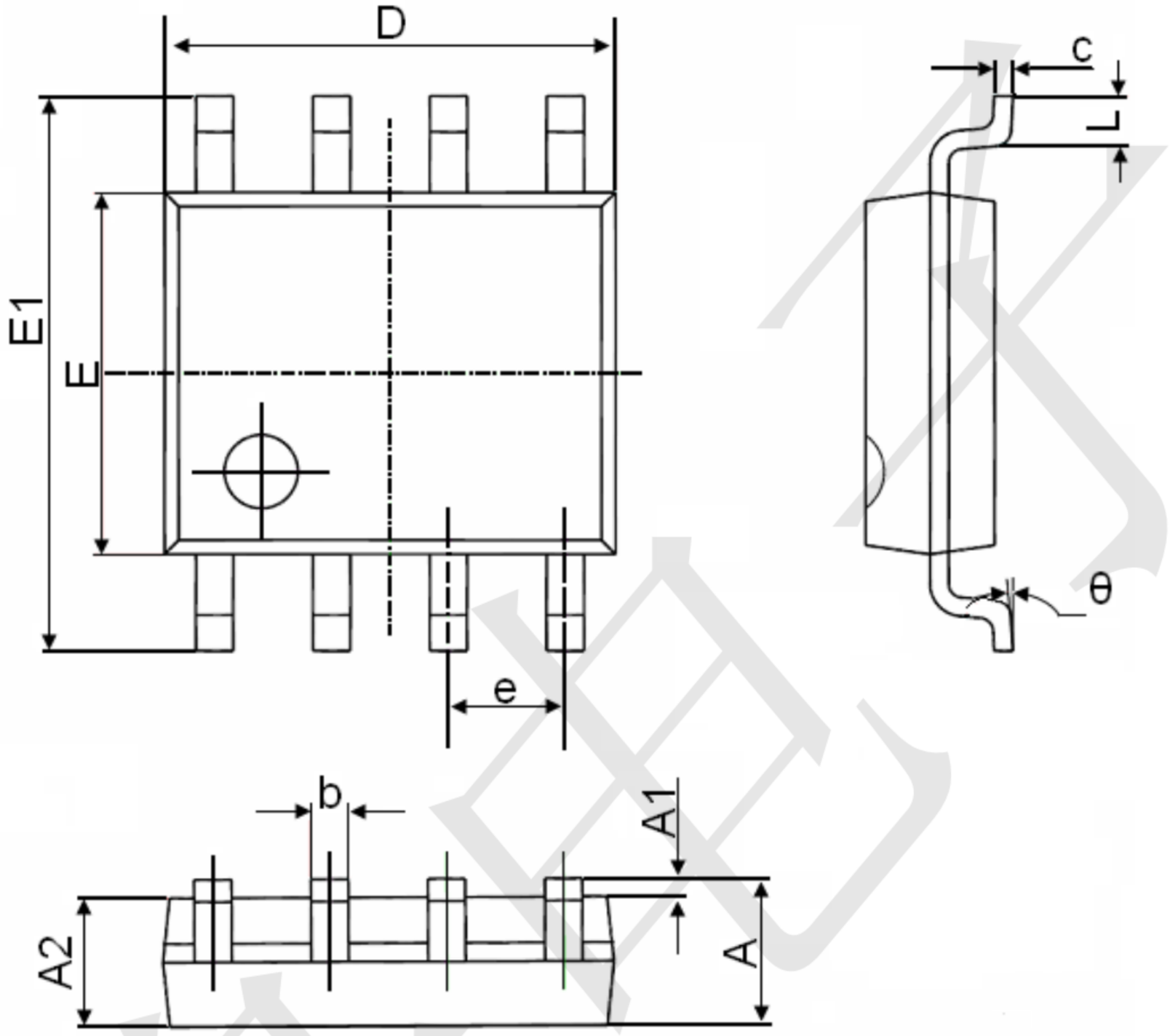
Electrical Characteristics (T_j=25℃unless otherwise noted)

Symbol	Parameter	Test Conditions	TECH PUBLIC			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250μA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	-	-	-1	μA
		T_J=85°C	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250μA	-1.3	-1.8	-2.3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [d]	Drain-Source On-state Resistance	V_{GS}=-10V, I_{DS}=-17.5A	-	5.7	6.8	mΩ
		V_{GS}=-4.5V, I_{DS}=-10A	-	9	13	
Diode Characteristics						
V_{SD} [d]	Diode Forward Voltage	I_{SD}=-1A, V_{GS}=0V	-	-0.7	-1	V
t_{rr} [e]	Reverse Recovery Time	I_{SD}=-15.5A, di_{SD}/dt=100A/μs	-	30	-	ns
Q_{rr} [e]	Reverse Recovery Charge		-	20	-	nC

Electrical Characteristics (Cont.) (T_j=25℃unless otherwise noted)

Symbol	Parameter	Test Conditions	TECH PUBLIC			Unit
			Min.	Typ.	Max.	
Dynamic Characteristics [e]						
R_g	Gate Resistance	V_{GS}=0V, V_{DS}=0V,F=1MHz	-	2	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Frequency=1.0MHz	-	3200	-	pF
C_{oss}	Output Capacitance		-	640	-	
C_{rss}	Reverse Transfer Capacitance		-	600	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=15Ω, I_{DS}=-1A, V_{GEN}=-10V, R_G=6Ω	-	15	-	ns
t_r	Turn-on Rise Time		-	19	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	88	-	
t_f	Turn-off Fall Time		-	62	-	
Gate Charge Characteristics [e]						
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_{DS}=-17.5A	-	70	-	nC
Q_{gs}	Gate-Source Charge		-	10	-	
Q_{gd}	Gate-Drain Charge		-	18	-	

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°