

350V N-Channel MOSFET

General Features

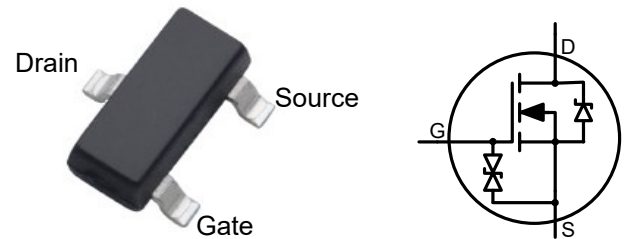
- ESD improved Capability
- Proprietary Advanced Planar Technology
- Rugged Polysilicon Gate Cell Structure
- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

BV_{DSX}	R_{DS(ON)} (Max.)	I_D
350V	15 Ω	200mA

SOT-23

Applications

- High Efficiency SMPS
- Adaptor/Charger
- Active PFC



Ordering Information

Part Number	Package	Marking	Remark
FTZ15N35G	SOT-23	N35	Halogen Free

Absolute Maximum Ratings

T_A=25°C unless otherwise specified

Symbol	Parameter	FTZ15N35G	Unit
V _{DSX}	Drain-to-Source Voltage ^[1]	350	V
V _{DGX}	Drain-to-Gate Voltage ^[1]	350	V
I _D	Continuous Drain Current	0.2	A
I _{DM}	Pulsed Drain Current ^[2]	0.6	
P _D	Power Dissipation	0.50	W
V _{GS}	Gate-to-Source Voltage	±20	V
V _{ESD(G-S)}	Gate Source ESD IEC, C=150pF, R=330 Ω	200	V
T _L	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	°C
T _J and T _{STG}	Operating and Storage Temperature Range	-55 to 150	

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	FTZ15N35G	Unit
R _{θJA}	Thermal Resistance, Junction-to-Ambient	250	K/W

Electrical Characteristics

OFF Characteristics

 $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	350	--	--	V	$V_{GS}=0V, I_D=250\mu A$
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature Coefficient	--	0.35	--	V/°C	Reference to 25°C , $I_D=250\mu A$
I_{DSS}	Drain-to-Source Leakage Current	--	--	1	μA	$V_{DS}=350V, V_{GS}=0V$
		--	--	100	μA	$V_{DS}=350V, V_{GS}=0V$ $T_J=125^\circ\text{C}$
I_{GSS}	Gate-to-Source Leakage Current	--	--	20	μA	$V_{GS}=+20V, V_{DS}=0V$
		--	--	-20		$V_{GS}=-20V, V_{DS}=0V$

ON Characteristics

 $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	8	15	Ω	$V_{GS}=10V, I_D=200mA$ [3]
$V_{GS(TH)}$	Gate Threshold Voltage	1	--	3	V	$V_{GD}=0V, I_D=250\mu A$

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{ISS}	Input Capacitance	--	32.58	--	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1.0MHz$
C_{OSS}	Output Capacitance	--	5.36	--		
C_{RSS}	Reverse Transfer Capacitance	--	0.75	--		
$t_{d(ON)}$	Turn-on Delay Time	--	14	--	ns	$V_{DD}=25V, I_D=80mA$ $R_G=25\Omega$ $V_{GS}=10V\sim 0V$
t_{rise}	Rise Time	--	10	--		
$t_{d(OFF)}$	Turn-off Delay Time	--	24	--		
t_{fall}	Fall Time	--	36	--		

Source-Drain Diode Characteristics

 $T_A = 25^\circ\text{C}$ unless otherwise specified

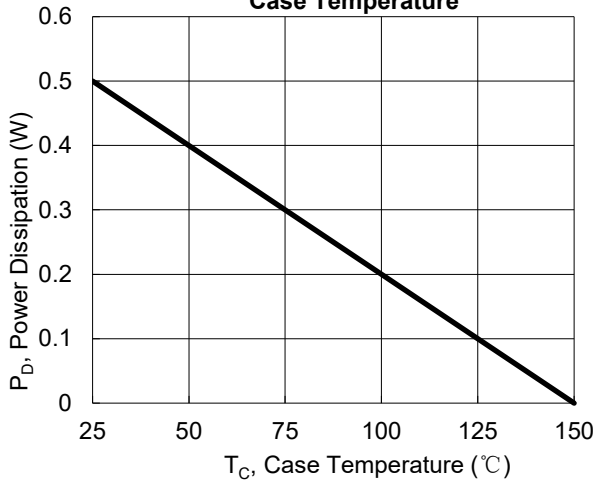
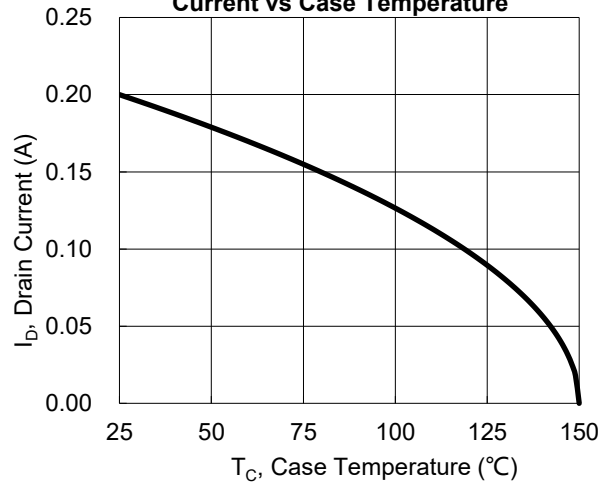
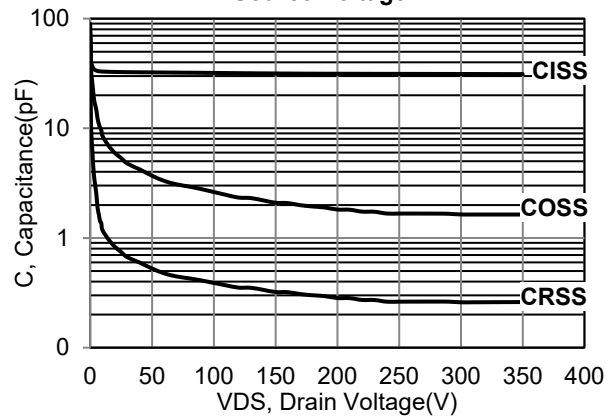
Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	1.8	V	$I_{SD}=200mA, V_{GS}=0V$

NOTE:

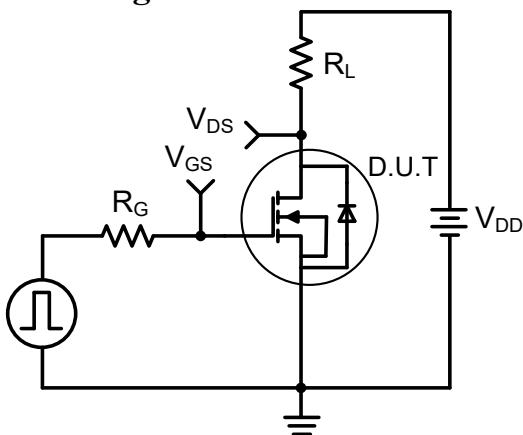
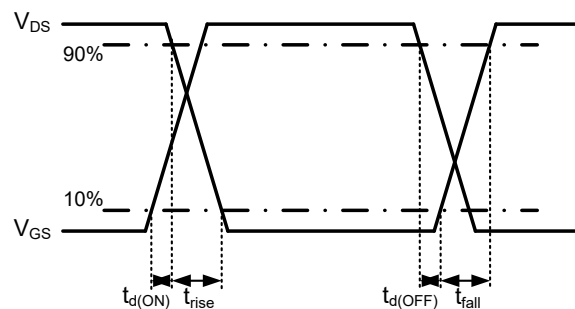
 [1] $T_J = +25^\circ\text{C}$ to $+150^\circ\text{C}$

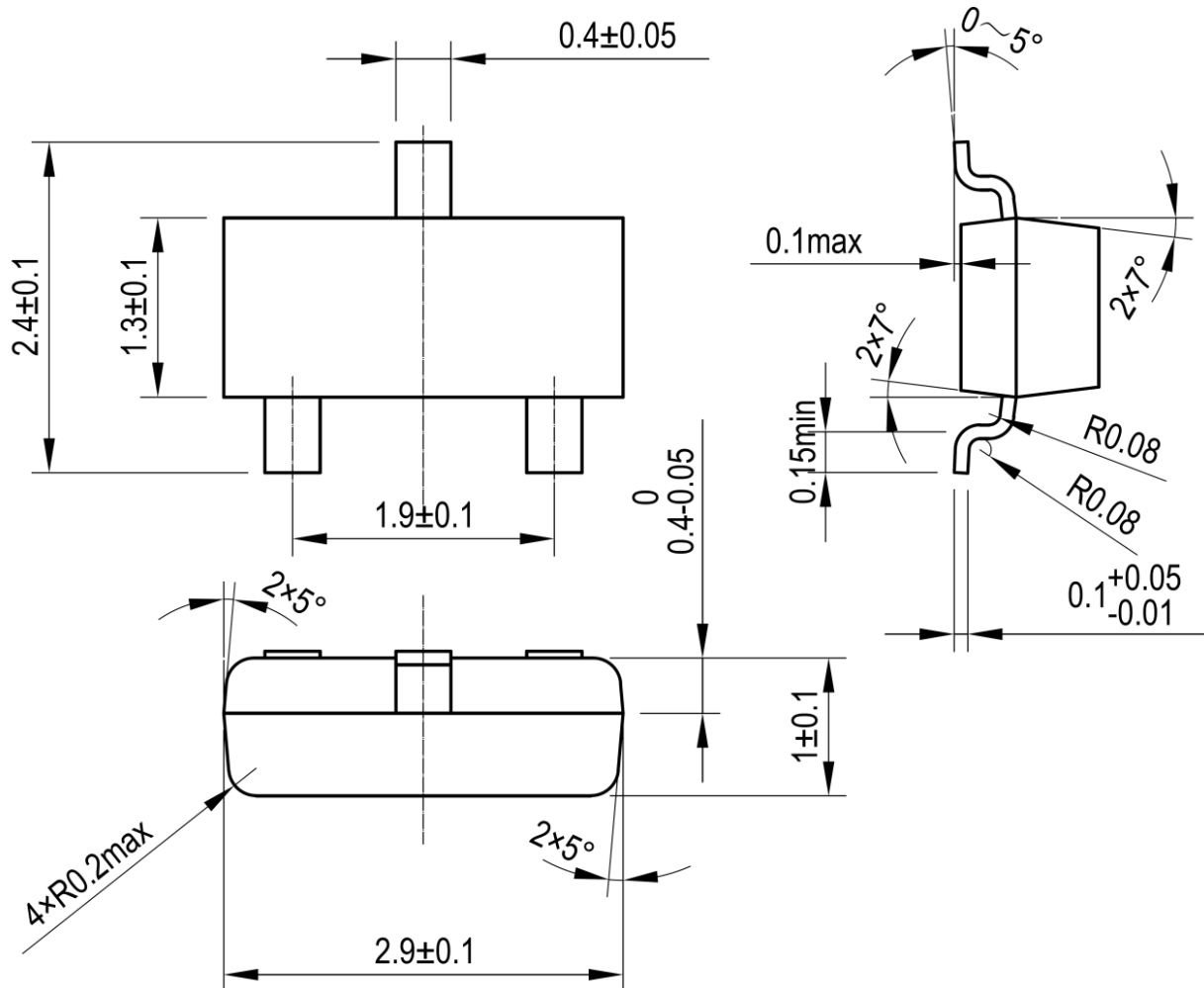
[2] Repetitive rating, pulse width limited by maximum junction temperature.

 [3] Pulse width $\leq 380\mu s$; duty cycle $\leq 2\%$.

Figure 1. Maximum Power Dissipation vs. Case Temperature

Figure 2. Maximum Continuous Drain Current vs Case Temperature

Figure 3. Typical Capacitance vs. Drain-to-Source Voltage


Switching Waveforms and Test Circuit


Figure 4. Resistive Switching Test Circuit

Figure 5. Resistive Switching Waveforms

Package Dimensions
SOT-23




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