

## 350V N-Channel MOSFET

### General Features

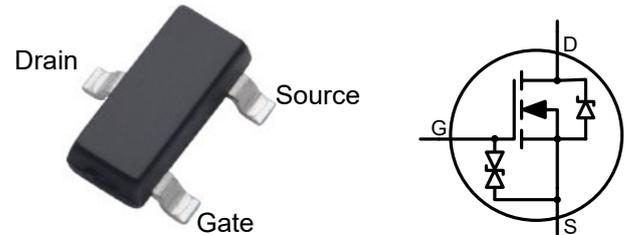
- ESD improved Capability
- Proprietary Advanced Planar Technology
- Rugged Polysilicon Gate Cell Structure
- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

<b>BV<sub>DSX</sub></b>	<b>R<sub>DS(ON)</sub> (Max.)</b>	<b>I<sub>D</sub></b>
<b>350V</b>	<b>15 Ω</b>	<b>200mA</b>

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<sub>A</sub>=25°C unless otherwise specified

Symbol	Parameter	FTZ15N35G	Unit
V <sub>DSX</sub>	Drain-to-Source Voltage <sup>[1]</sup>	350	V
V <sub>DGX</sub>	Drain-to-Gate Voltage <sup>[1]</sup>	350	V
I <sub>D</sub>	Continuous Drain Current	0.2	A
I <sub>DM</sub>	Pulsed Drain Current <sup>[2]</sup>	0.6	
P <sub>D</sub>	Power Dissipation	0.50	W
V <sub>GS</sub>	Gate-to-Source Voltage	±20	V
V <sub>ESD(G-S)</sub>	Gate Source ESD IEC, C=150pF, R=330 Ω	200	V
T <sub>L</sub>	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	°C
T <sub>J</sub> and T <sub>STG</sub>	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 <sub>θJA</sub>	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 $25^\circ\text{C}$ , $I_D=250\mu A$
$I_{DSS}$	Drain-to-Source Leakage Current	--	--	1	$\mu A$	$V_{DS}=350V, V_{GS}=0V$
		--	--	100	$\mu A$	$V_{DS}=350V, V_{GS}=0V$ $T_J=125^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Leakage Current	--	--	20	$\mu A$	$V_{GS}=+20V, V_{DS}=0V$
		--	--	-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	$\Omega$	$V_{GS}=10V, I_D=200mA$ [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

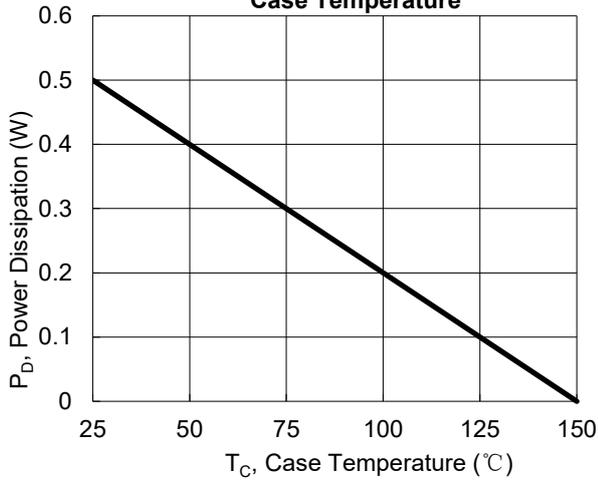
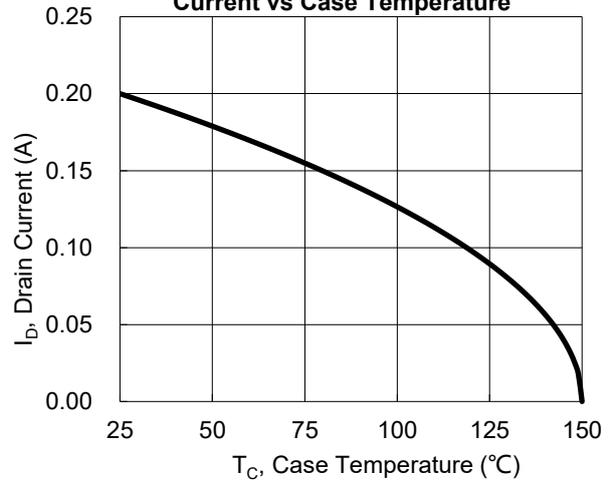
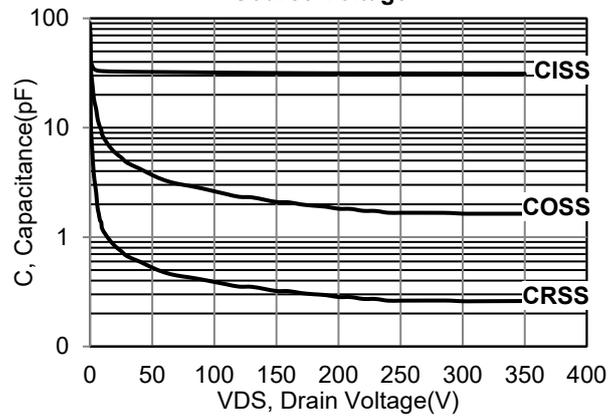
Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
$V_{SD}$	Diode Forward Voltage	--	--	1.8	V	$I_{SD}=200mA, V_{GS}=0V$

**NOTE:**

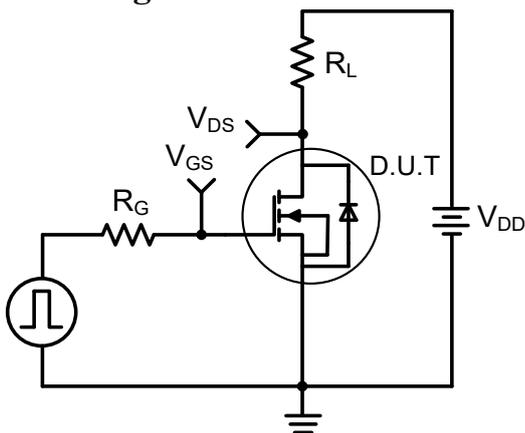
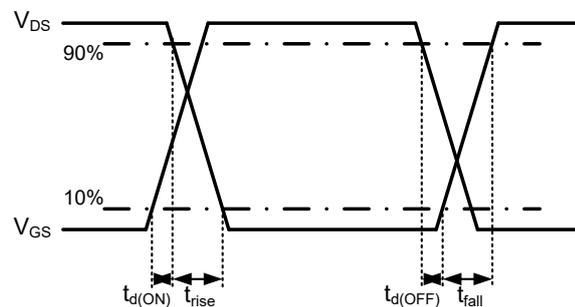
[1]  $T_J = +25^\circ\text{C}$  to  $+150^\circ\text{C}$ 

[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**





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