

## 350V P-Channel Enhancement Mode MOSFET

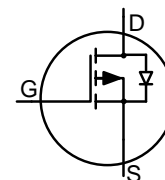
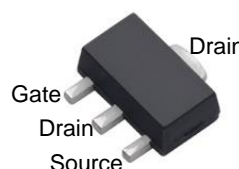
### General Features

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

<b>BV<sub>DSS</sub></b>	<b>R<sub>DS(ON)</sub> (Max.)</b>	<b>I<sub>D</sub></b>
<b>-350V</b>	<b>30 Ω</b>	<b>-200mA</b>

### Applications

- High Efficiency SMPS
- Adaptor/Charger
- Active PFC

**SOT-89**


### Ordering Information

Part Number	Package	Marking	Remark
FTX30P35G	SOT-89	P35	Halogen Free

### Absolute Maximum Ratings

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

Symbol	Parameter	FTX30P35G	Unit
V <sub>DSS</sub>	Drain-to-Source 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	1.0	W
V <sub>GS</sub>	Gate-to-Source Voltage	±20	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	FTX30P35G	Unit
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	125	K/W

## Electrical Characteristics

### OFF Characteristics

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

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{DSS}$	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	$\mu A$	$V_{DS}=-350V, V_{GS}=0V$
		--	--	-100	$\mu A$	$V_{DS}=-350V, V_{GS}=0V$ $T_J=125^\circ C$
$I_{GSS}$	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	--	18	30	$\Omega$	$V_{GS}=-10V, I_D=-200mA$ [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	--	43.39	--	pF	$V_{GS}=0V$ $V_{DS}=-25V$ $f=1.0MHz$
$C_{OSS}$	Output Capacitance	--	6.94	--		
$C_{RSS}$	Reverse Transfer Capacitance	--	0.84	--		
$t_{d(ON)}$	Turn-on Delay Time	--	12	--	ns	$V_{GS} = -10V \sim 0V$ $V_{DD} = -25V, I_D = -80mA$ $R_G = 250\Omega$
$t_{rise}$	Rise Time	--	60	--		
$t_{d(OFF)}$	Turn-off Delay Time	--	136	--		
$t_{fall}$	Fall Time	--	320	--		

### 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	$I_{SD} = -200 mA, V_{GS} = 0 V$

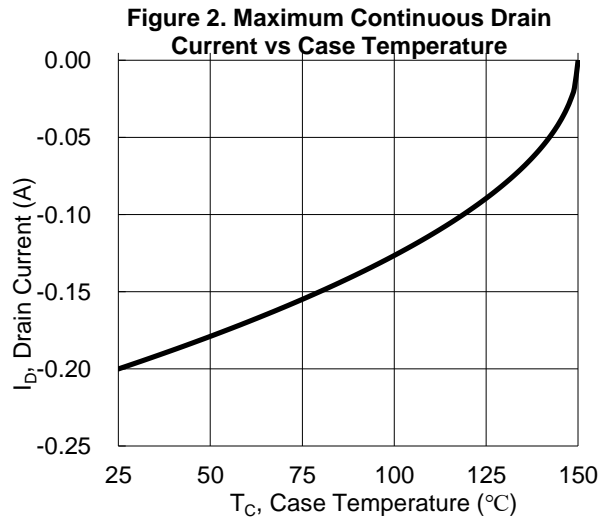
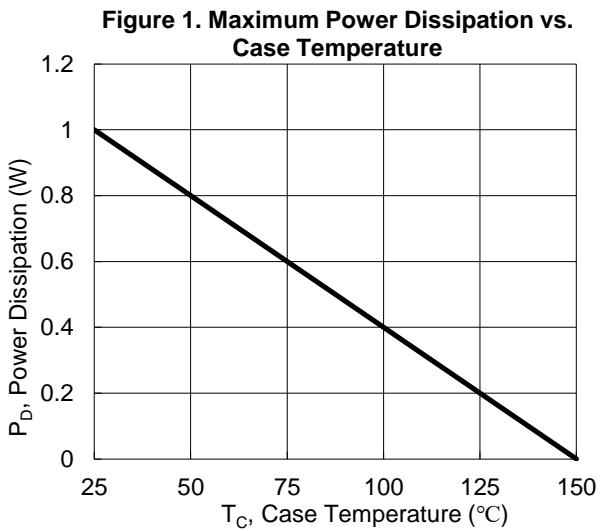
NOTE:

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

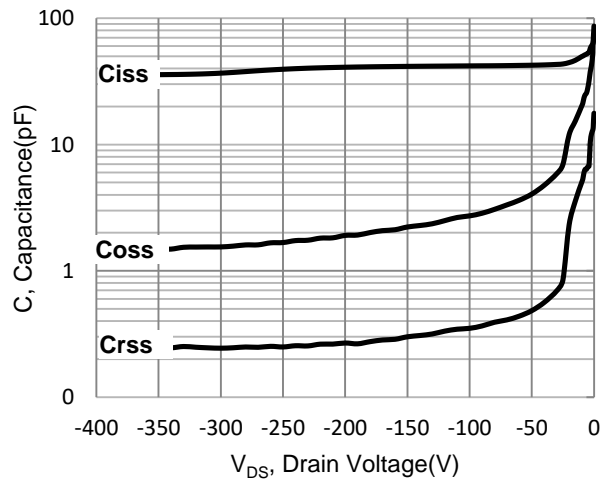
[2] Repetitive rating, pulse width limited by maximum junction temperature.

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

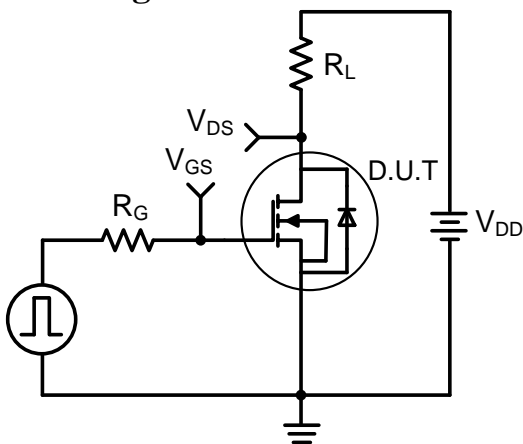
## Typical Characteristics



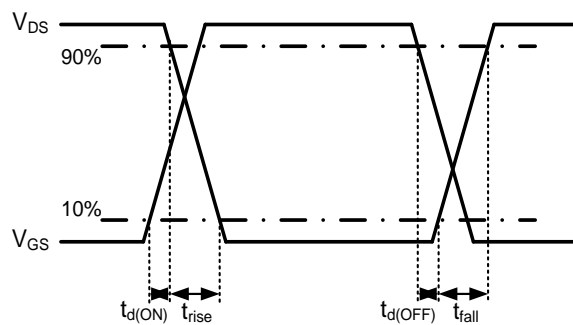
**Figure 3. Typical Capacitance vs. Drain-to-Source Voltage**



## Switching Waveforms and Test Circuit



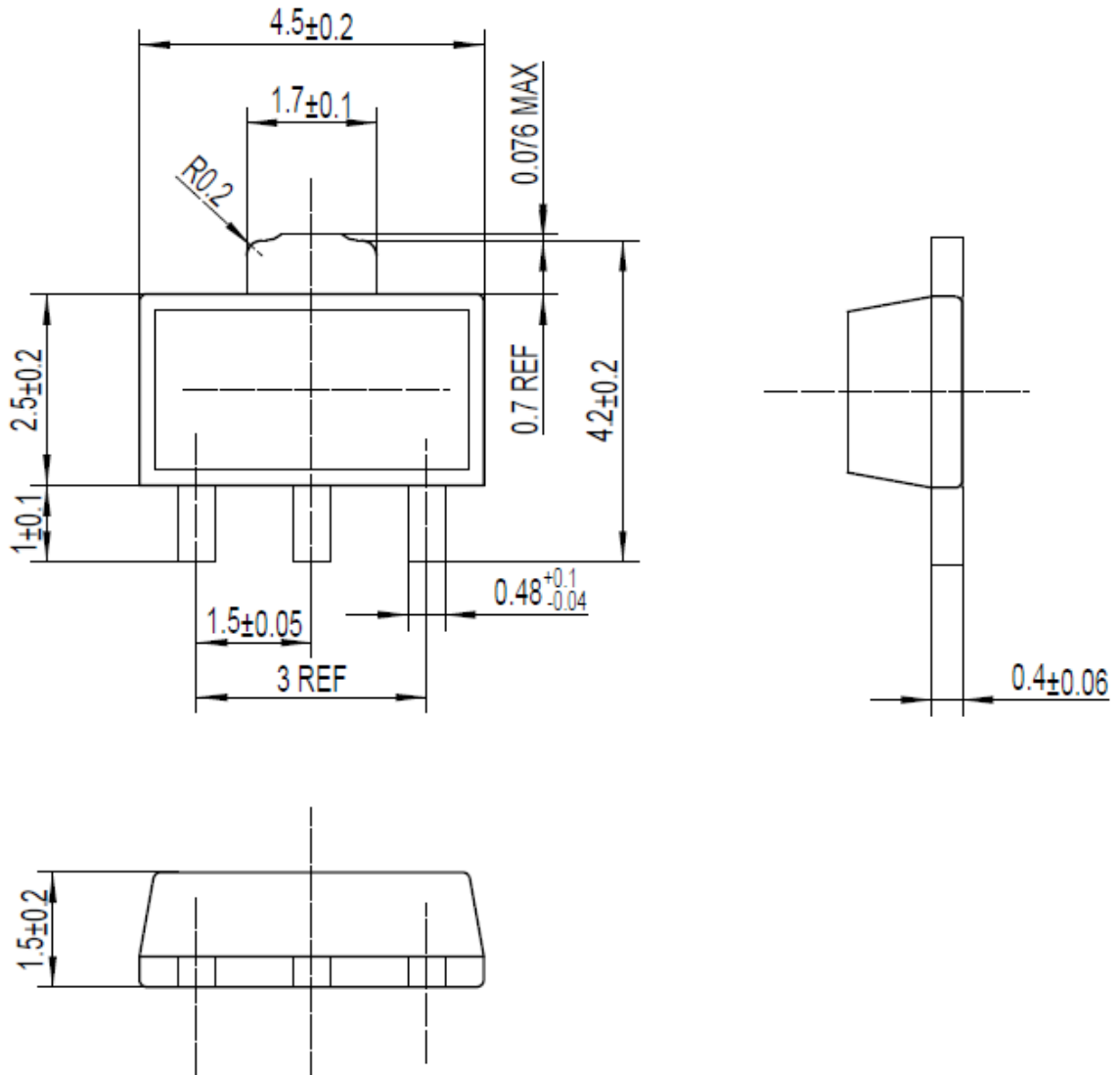
**Figure 4. Resistive Switching Test Circuit**



**Figure 5. Resistive Switching Waveforms**

Package Dimensions

SOT-89





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