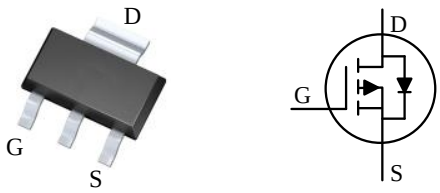
650V P-Channel Enhancement Mode MOSFET

General Features

- 650V High Voltage Capability
- SOT-223 Packages
- Fast Switching Characteristics
- Low Gate Charge
- RoHS Compliant
- Halogen-free Available

BV_{DSS}	$R_{DS(on)(Max.)}$	I_D
-650V	**16Ω**	**-0.2A**

SOT-223



Applications

- Networking
- LED Lighting Drivers
- Quick Charger Applications
- DC-DC Power Management

Ordering Information

Part Number	Package	Marking	Remark
FTS12P65G	SOT-223	12P65	Halogen Free

Absolute Maximum Ratings

T_A = 25℃ unless otherwise specified

Symbol	Parameter	FTS12P65G	Unit
V_{DSS}	Drain-to-Source Voltage [1]	-650	V
V_{DGS}	Drain-to-Gate Voltage [1]	-650	V
V_{GS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current [2]	-0.2	A
I_{DM}	Pulsed Drain Current [3]	-0.8	A
P_D	Power Dissipation [4]	1.5	W
T_L	Soldering Temperature Distance of 1.6mm from case for 10 seconds	300	℃
T_J & T_{STG}	Operating and Storage Temperature Range	-55 to 150	℃

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

Thermal Characteristics

Symbol	Parameter	FTS12P65G	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	83	℃/W

Electrical Characteristics

OFF Characteristics

T_A = 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	-650	--	--	V	V_{GS} = 0V, I_D = -250μA
I_{DSS}	Drain-to-Source Leakage Current	--	--	-10	μA	V_{DS} = -650V, V_{GS} = 0V
I_{GSS}	Gate-to-source Leakage Current	--	--	1	μA	V_{GS} = 20V, V_{DS} = 0V
		--	--	-1		V_{GS} = -20V, V_{DS} = 0V

ON Characteristics

T_A = 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	--	--	16	Ω	V_{GS} = -10V, I_D = -0.5A [5]
$V_{GS(th)}$	Gate Threshold Voltage	-4	--	-1	V	V_{GS} = V_{DS}, I_D = -250μA

Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
C_{iss}	Input Capacitance	--	878	--	pF	V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz
C_{oss}	Output Capacitance	--	36.1	--		
C_{rss}	Reverse Transfer Capacitance	--	14.5	--		
Q_g	Total Gate Charge	--	14	--	nC	V_{GS} = -6.5V, V_{DD} = -50V, I_D = -0.25A
Q_{gs}	Gate-to-Source Charge	--	6.0	--		
Q_{gd}	Gate-to-Drain (Miller) Charge	--	3.2	--		

Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(on)}$	Turn-on Delay Time	--	11	--	ns	V_{GS} = -10V, V_{DD} = -50V, I_D = -0.25A, R_G = 6Ω
t_r	Rise Time	--	4	--		
$t_{d(off)}$	Turn-off Delay Time	--	26	--		
t_f	Fall Time	--	45	--		

Source-Drain Diode Characteristics

T_A = 25℃ unless otherwise specified

Symbol	Parameter	Min	Typ.	Max.	Unit	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	-1.2	V	I_{SD} = -0.5A, V_{GS} = 0V

NOTE：

[1] T_J = +25℃ to +150℃.
[2] T_C = +25℃.
[3] Repetitive rating, pulse width limited by maximum junction temperature.
[4] T_C = +25℃.
[5] Pulse width ≤ 380μs, duty cycle ≤ 2%.

Typical Characteristics

Figure 1. Maximum Power Dissipation vs. Case Temperature

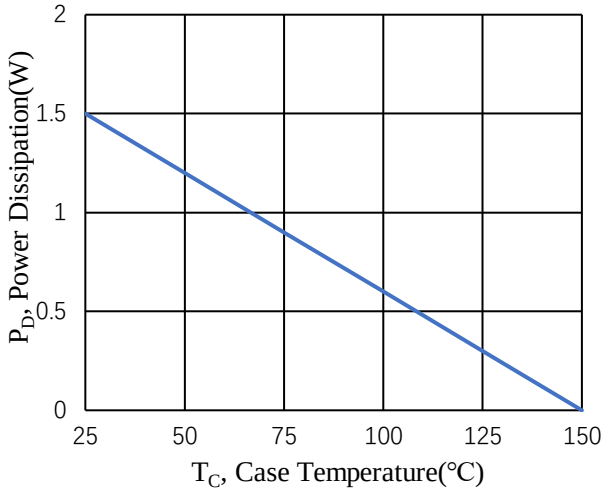


Figure 2. Maximum Continuous Drain Current vs. Case Temperature

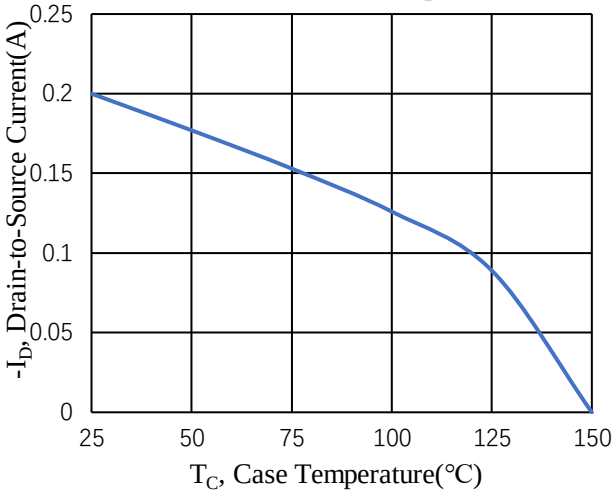


Figure 3. Typical Output Characteristics

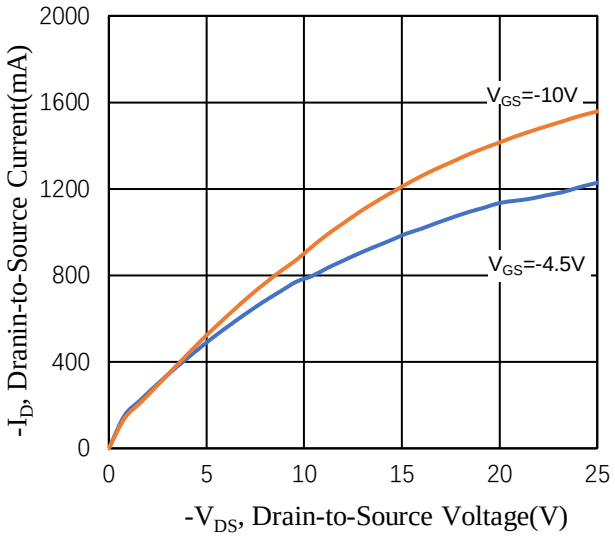


Figure 4. Typical Transfer Characteristics

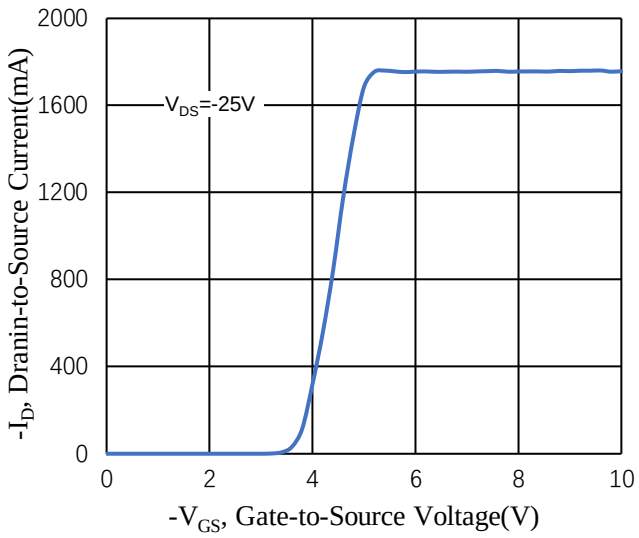


Figure 5. Typical Capacitance vs. Drain-to-Source Voltage

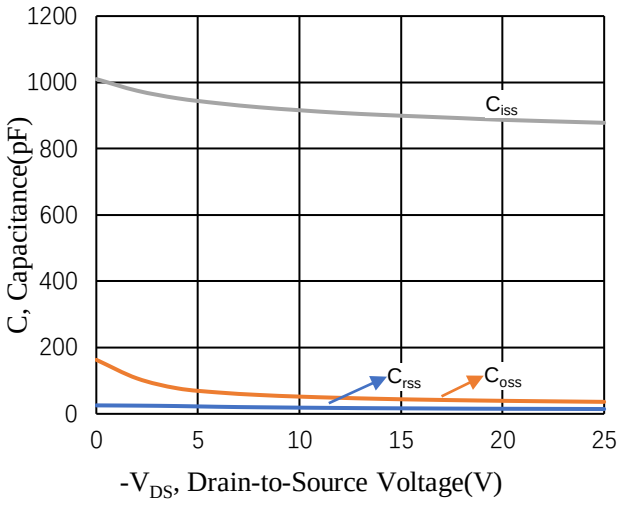


Figure 6. Typical Gate Charge vs. Gate-to-Source Voltage

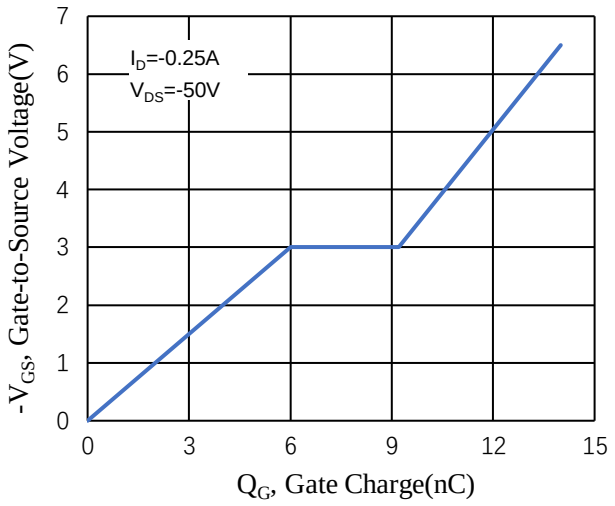


Figure 7. Threshold Voltage vs. Temperature

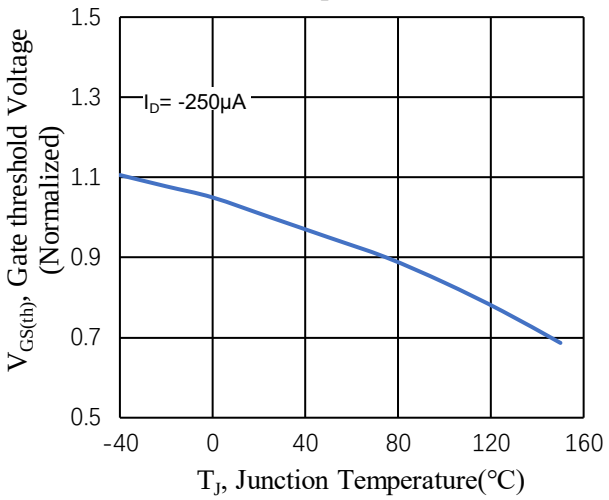


Figure 8. Normalized On-Resistance vs. Junction Temperature

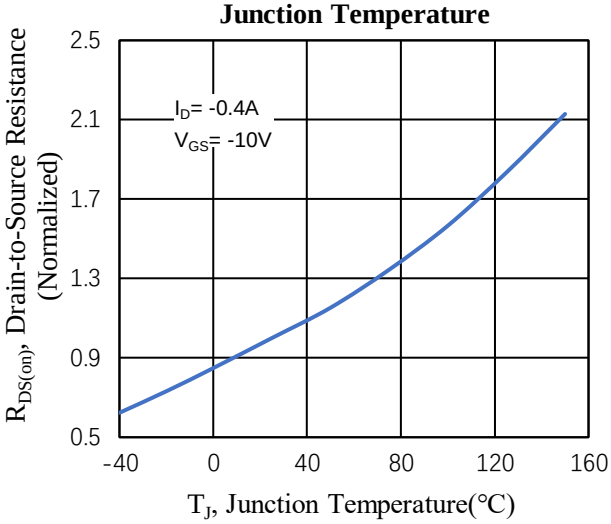
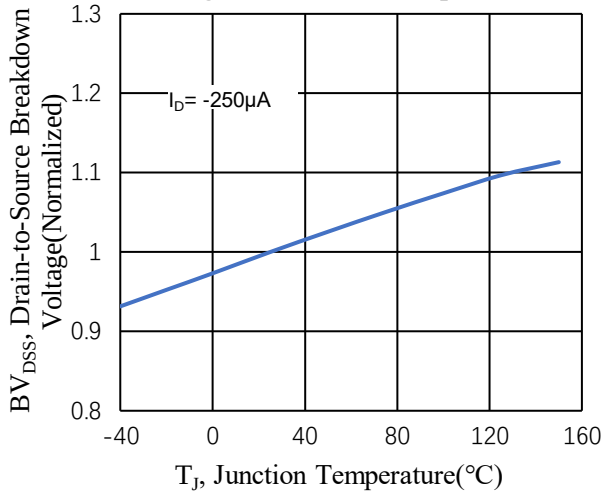
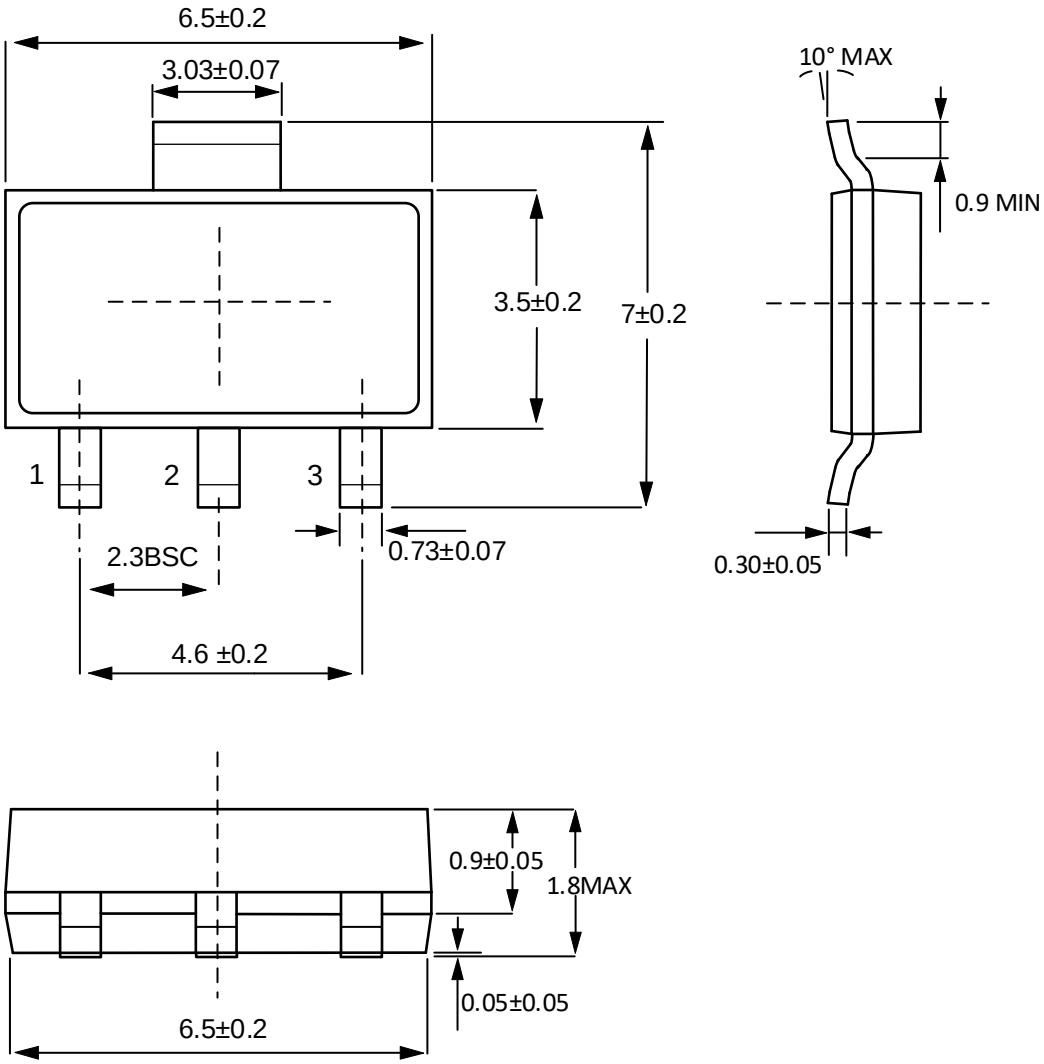


Figure 9. Drain-to-Source Breakdown Voltage vs. Junction Temperature



Package Dimensions

SOT-223



Unit：mm

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