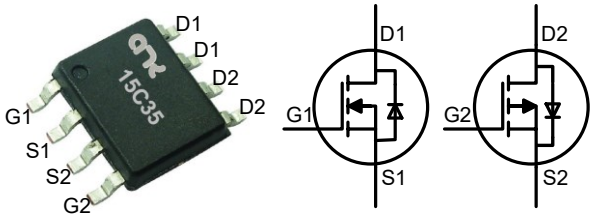
350V N+P Dual Channel MOSFETs

General Features

- 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	15Ω	300mA
-350V	30Ω	-200mA

SOP-8



Applications

- Power Management
- Load Switch
- Motor Driver

Ordering Information

Part Number	Package	Marking	Remark
FTE15C35G	SOP-8	15C35	Halogen Free

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter	N channel	P channel	Unit
V_{DSS}	Drain-to-Source Voltage[1]	350	-350	V
V_{GS}	Gate-to-Source Voltage	±20	±20	V
I_D	Continuous Drain Current	0.3	-0.2	A
I_{DP}	300us Pulsed Drain Current Tested[2]	1.2	-0.8	A
P_D	Power Dissipation	2.5		W
T_J and T_{STG}	Operating and Storage Temperature Range	-55 to 150		℃

**Drain Current limited by Maximum Junction Temperature.*
Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	FTE15C35G	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	50	℃/W

Electrical Characteristics

N-channel

OFF Characteristics(T_A=25°C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	350	--	--	V	V_{GS}=0V, I_D=250μA
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℃
I_{GSS}	Gate-to-Source Leakage Current	--	--	20	μA	V_{GS}=+20V, V_{DS}=0V
		--	--	-20	μA	V_{GS}=-20V, V_{DS}=0V

ON Characteristics(T_A=25°C unless otherwise noted)

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=300mA [3]
$V_{GS(TH)}$	Gate Threshold Voltage	1	--	3	V	V_{GD} =0V, I_D=250μA

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}	Oput 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 = 25Ohm V_{GS} = 10V~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°C unless otherwise noted)

Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	1.2	V	I_{SD} =300 mA, V_{GS} = 0 V

P-channel

OFF Characteristics(T_A=25°C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSX}	Drain-to-Source Breakdown Voltage	-350	--	--	V	V_{GS}=0V, I_D=250μA
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℃
I_{GSS}	Gate-to-Source Leakage Current	--	--	20	μA	V_{GS}=+20V, V_{DS}=0V
		--	--	-20	μA	V_{GS}=-20V, V_{DS}=0V

ON Characteristics(T_A=25°C unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	18	30	Ω	V_{GS}=-10V，I_D=-200mA [3]
$V_{GS(TH)}$	Gate Threshold Voltage	-1	--	-3	V	V_{GD} =0V, I_D=-250μA

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}	Oput Capacitance	--	6.94	--		
C_{RSS}	Reverse Transfer Capacitance	--	0.84	--		
$t_{d(ON)}$	Turn-on Delay Time	--	12	--	ns	V_{GS} = -10V~0V V_{DD} = -25V, I_D=-80mA R_G = 25Ohm
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°C unless otherwise noted)

Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V_{SD}	Diode Forward Voltage	--	--	-1.2	V	I_{SD} =-200 mA, V_{GS} =0 V

NOTE：

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

Figure 1. Maximum Power Dissipation vs. Case Temperature

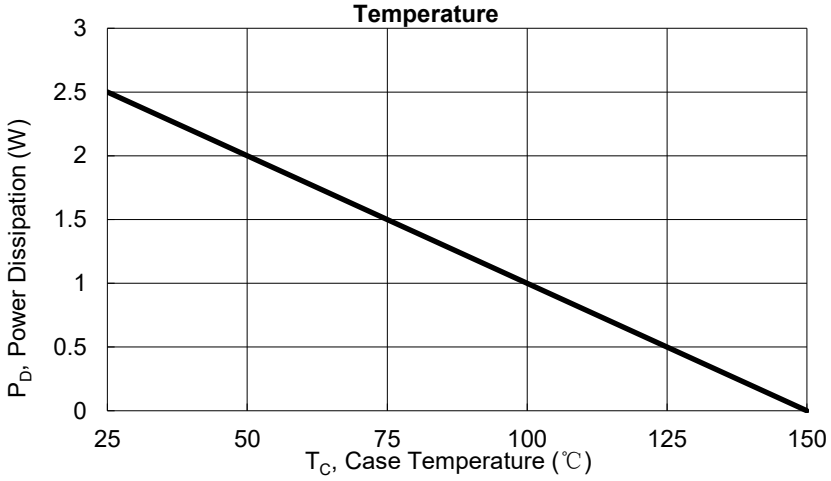


Figure 2. N channel Maximum Continuous Drain Current vs Case Temperature

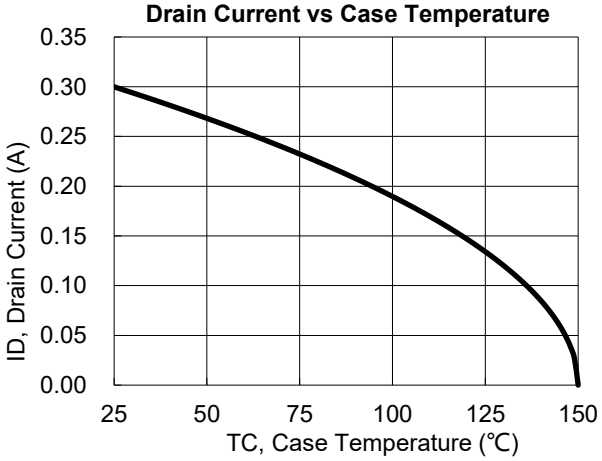


Figure 3. P channel Maximum Continuous Drain Current vs Case Temperature

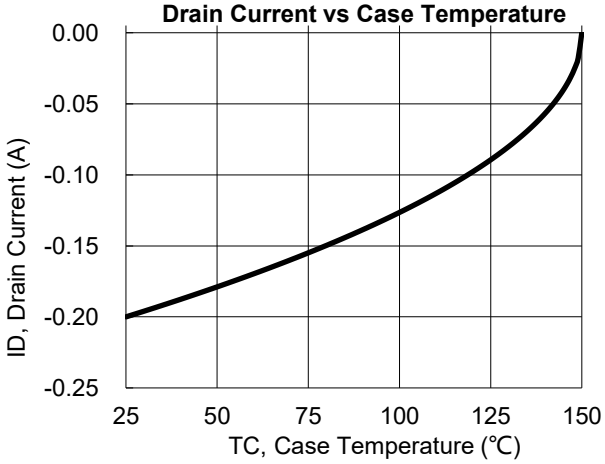


Figure 4. N channel Typical Capacitance vs. Drain-to-Source Voltage

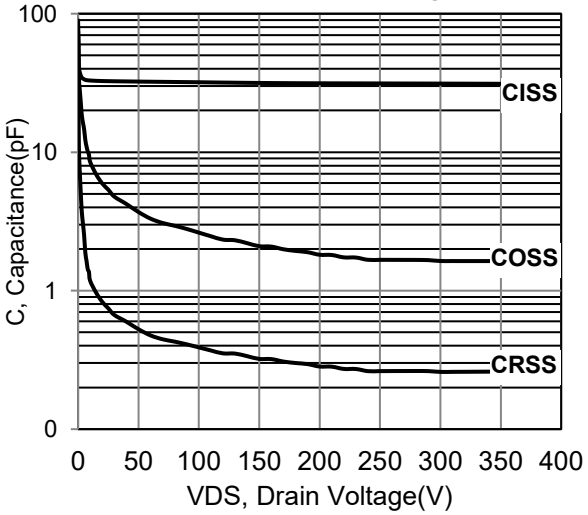
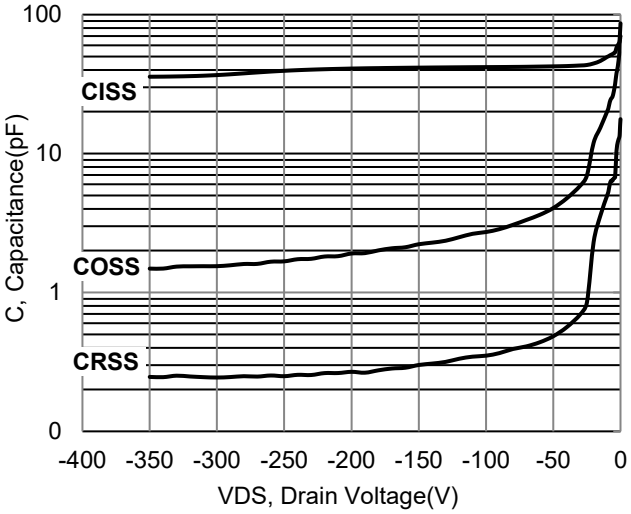


Figure 5. P channel Typical Capacitance vs. Drain-to-Source Voltage



Package Dimensions

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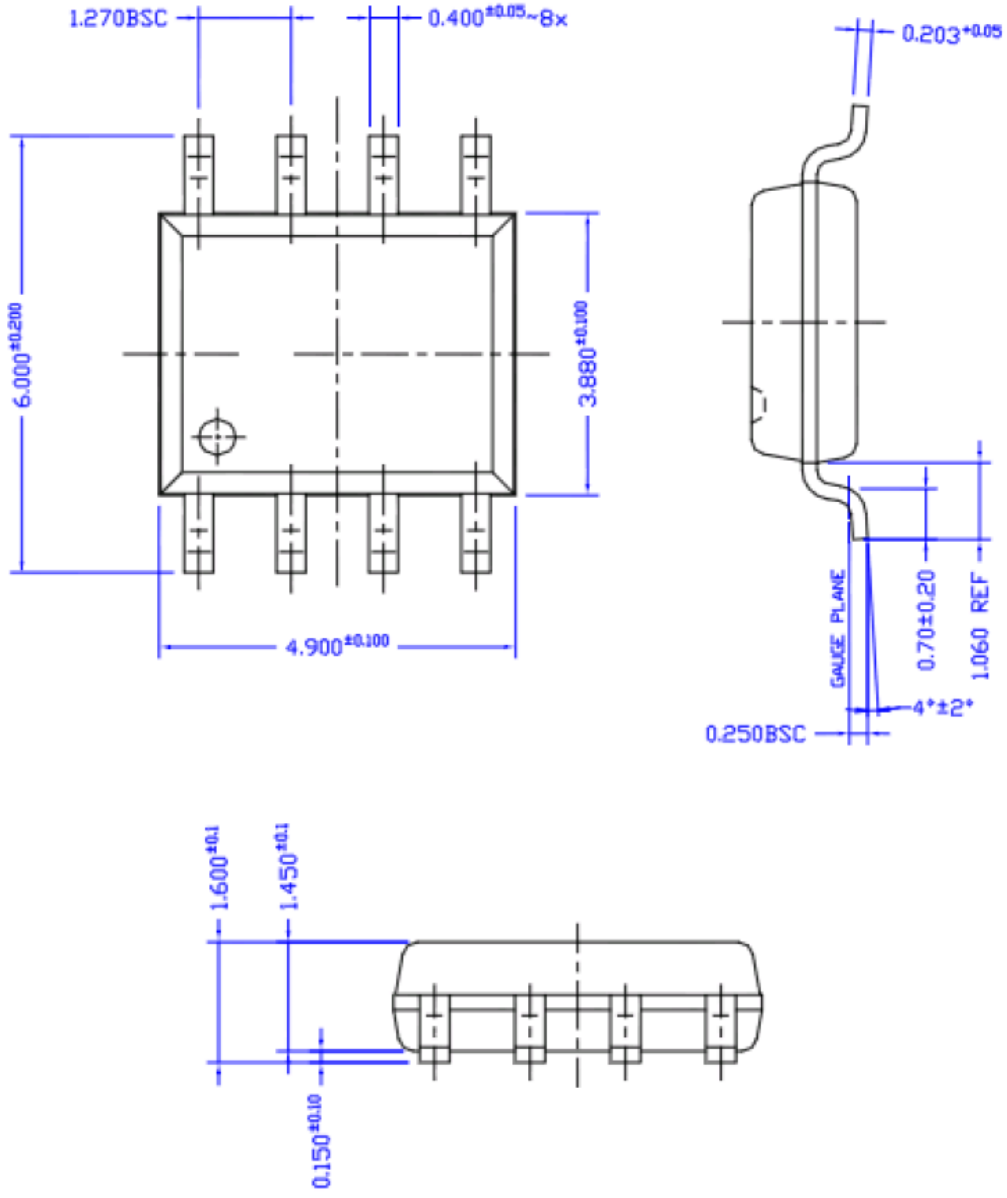

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