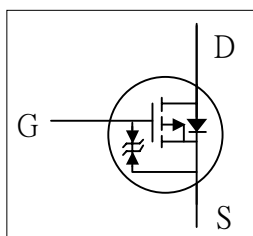


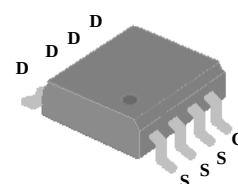
- ▼ 100% R_g & UIS Test
- ▼ Simple Drive Requirement
- ▼ Ultra Low On-resistance
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	-30V
$R_{DS(ON)}$	7m Ω
I_D^3	-15.5A
HBM ESD	2KV

Description

XP3P7R0E series are innovated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.



The SO-8 package is widely preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Absolute Maximum Ratings@ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 25	V
$I_D@T_A=25^\circ\text{C}$	Drain Current ³ , V_{GS} @ 10V	-15.5	A
$I_D@T_A=70^\circ\text{C}$	Drain Current ³ , V_{GS} @ 10V	-12.4	A
I_{DM}	Pulsed Drain Current ¹	-50	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
R_{thj-a}	Maximum Thermal Resistance, Junction-ambient ³	50	$^\circ\text{C}/\text{W}$

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-30	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V, I _D =-14A	-	-	7	mΩ
		V _{GS} =-4.5V, I _D =-7A	-	-	11	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-1	-	-2	V
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-14A	-	42	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V	-	-	-10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±20V, V _{DS} =0V	-	-	±30	uA
Q _g	Total Gate Charge	I _D =-7A	-	33	52.8	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-15V	-	10	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	10	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-15V	-	38	-	ns
t _r	Rise Time	I _D =-1A	-	58	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	600	-	ns
t _f	Fall Time	V _{GS} =-10V	-	240	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	4300	6880	pF
C _{oss}	Output Capacitance	V _{DS} =-15V	-	600	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	270	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =-2.1A, V _{GS} =0V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	I _S =-14A, V _{GS} =0V,	-	30	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	21	-	nC

Notes:

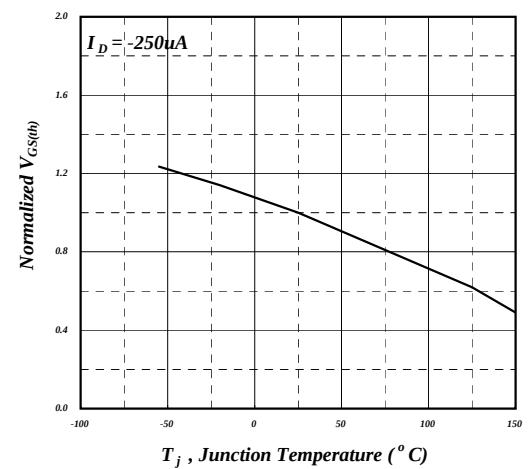
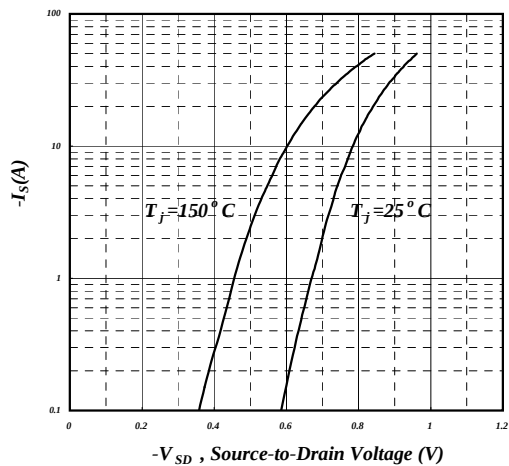
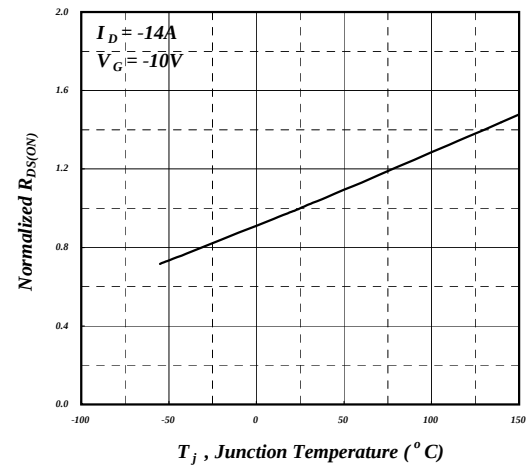
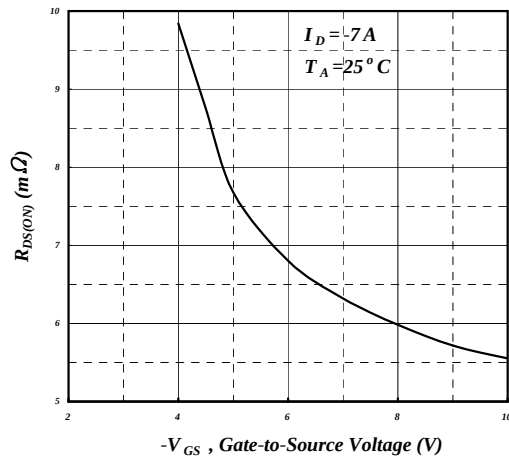
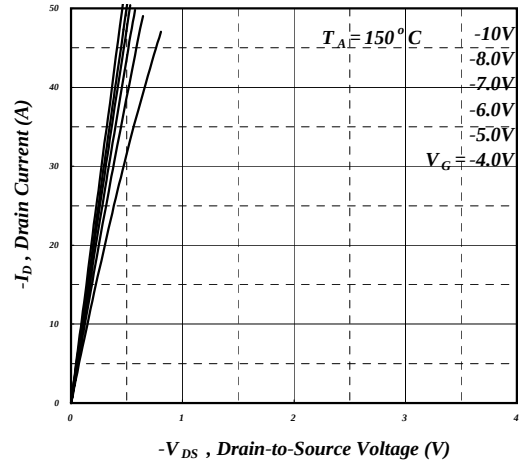
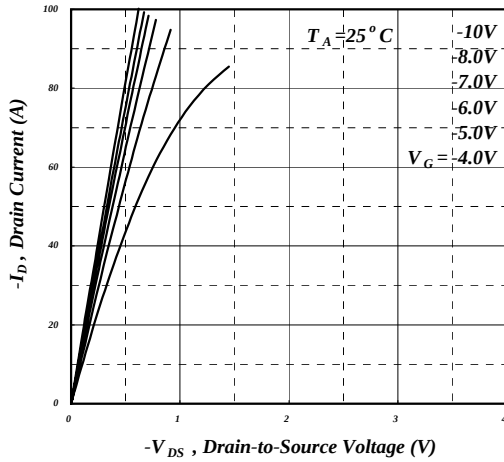
- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board, t ≤ 10s ; 125 °C/W when mounted on Min. copper pad.

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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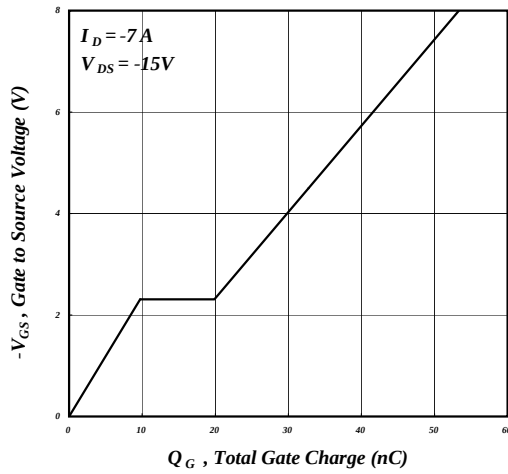


Fig 7. Gate Charge Characteristics

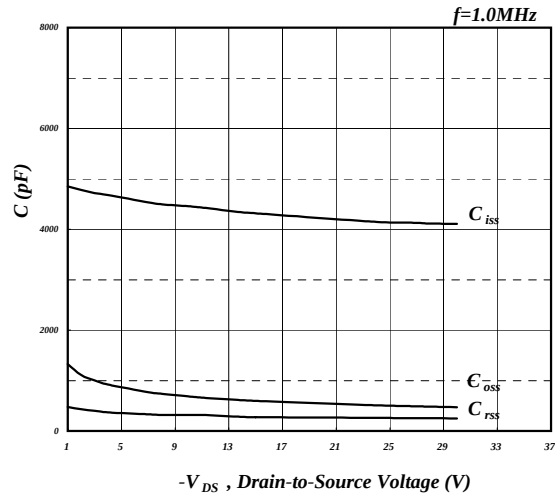


Fig 8. Typical Capacitance Characteristics

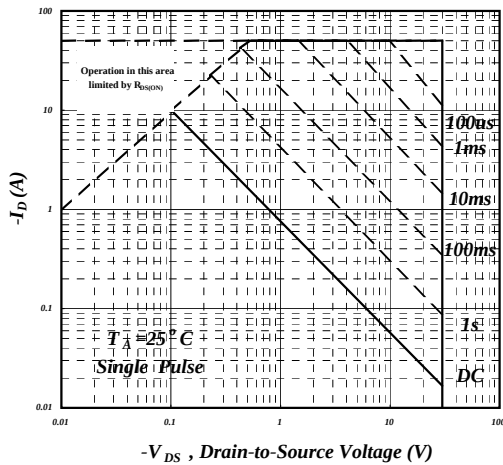


Fig 9. Maximum Safe Operating Area

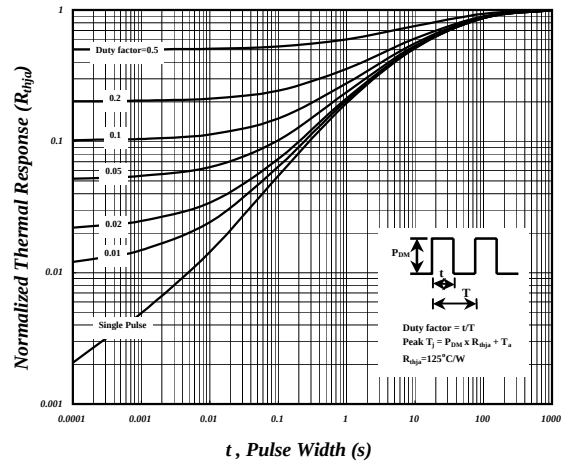


Fig 10. Effective Transient Thermal Impedance

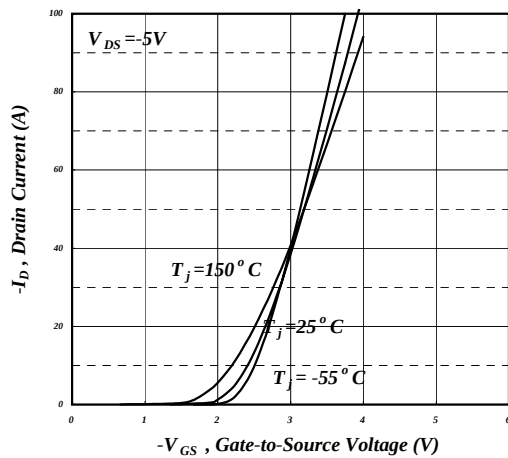


Fig 11. Transfer Characteristics

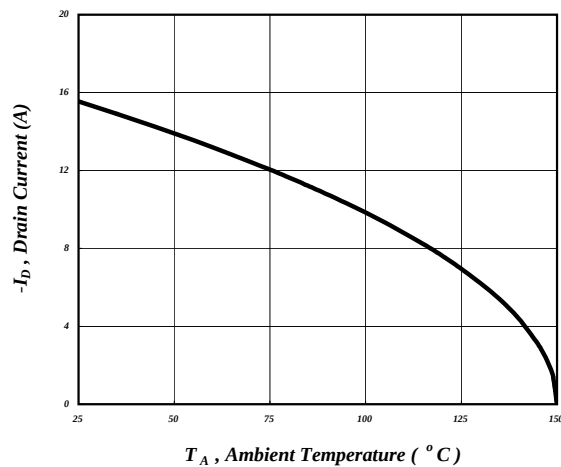


Fig 12. Drain Current v.s. Ambient Temperature

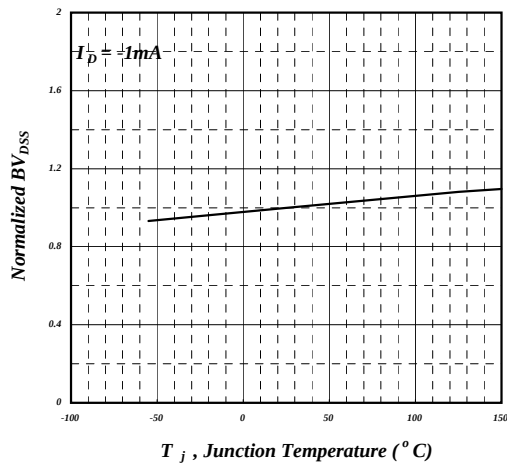


Fig 13. Normalized BV_{DSS} v.s. Junction Temperature

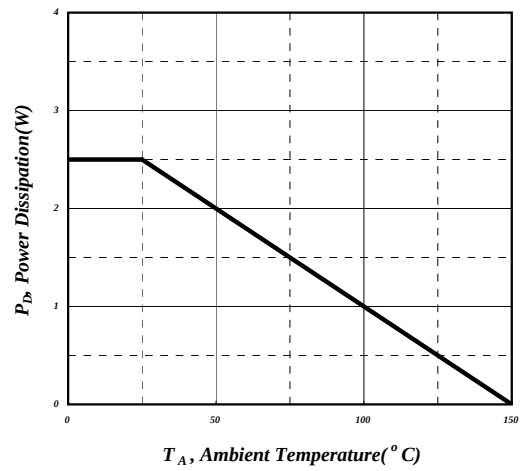


Fig 14. Total Power Dissipation

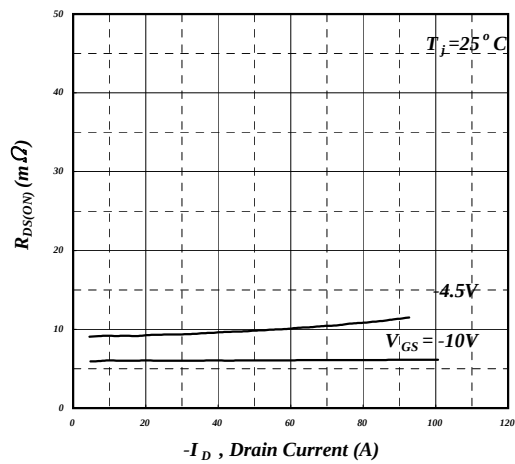
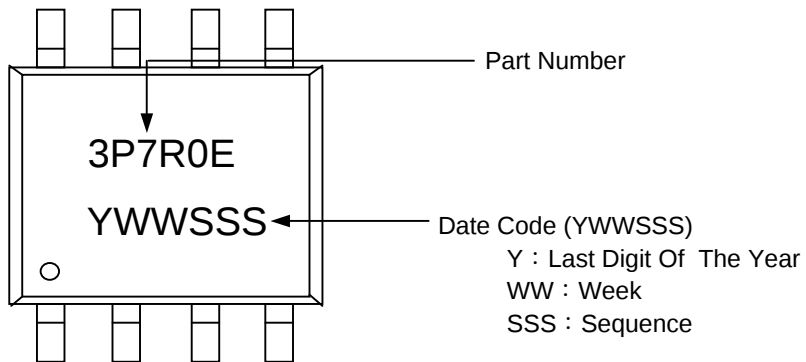
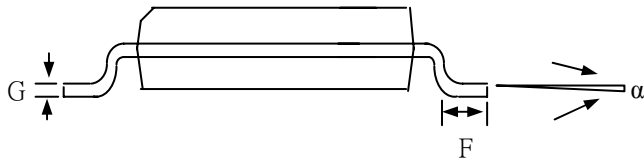
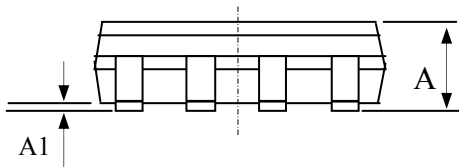
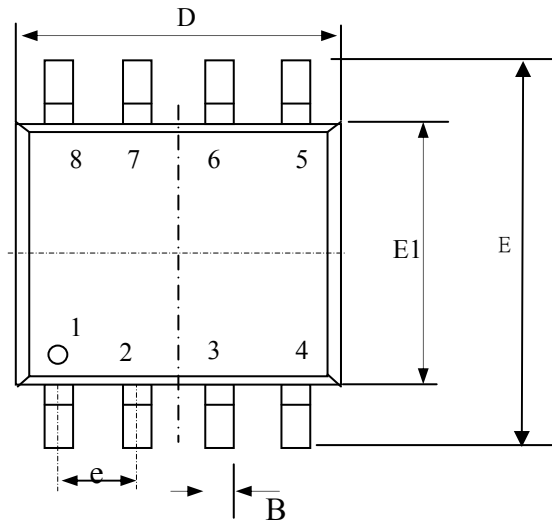


Fig 15. Typ. Drain-Source on State Resistance

MARKING INFORMATION



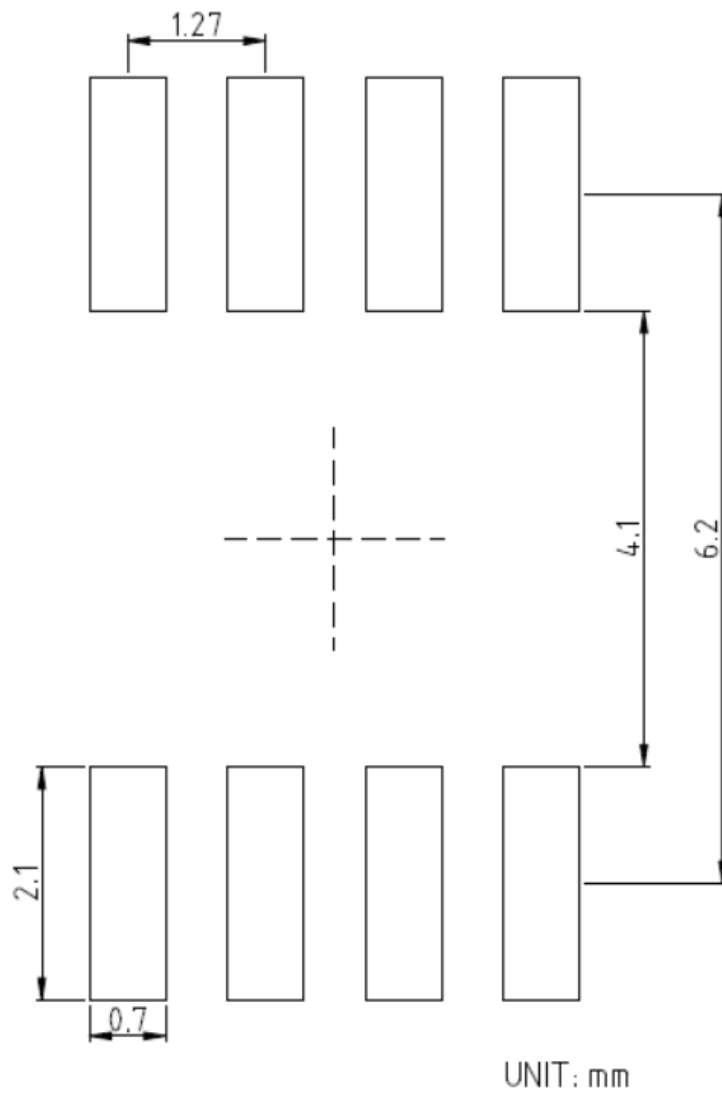
Package Outline : SO-8



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.05	0.15	0.25
B	0.30	0.41	0.51
D	4.80	5.05	5.30
E	5.79	6.00	6.20
E1	3.70	3.90	4.10
e	1.27 TYP		
G	0.17	0.21	0.25
F	0.38	0.83	1.27
α	0°	4°	8°

- 1.All Dimension Are In Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

SO-8 FOOTPRINT :



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