



30V Dual P-Channel MOSFETs

General Description

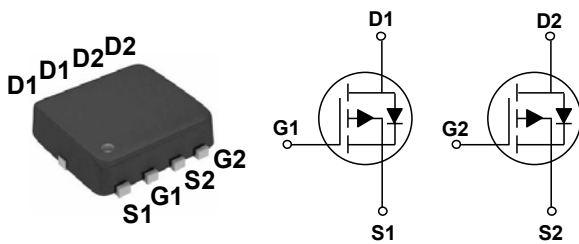
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

BV_{DSS}	$R_{DS(ON)}$	I_D
-30 V	32 mΩ	-14 A

Features

- $R_{DS(ON)} \leq 32m\Omega @ V_{GS} = -10V$
- Fast Switching
- Green Device Available

PPAK3X3 Dual Pin Configuration



Applications

- Notebook
- Battery Protection
- Load Switch
- Hand-Held Instruments

Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current - Continuous	-14	A
I_{DM}	Drain Current - Pulsed (NOTE 1)	-56	A
P_D	Power Dissipation ($T_A=25^\circ C$)	2	W
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
Marking Code		PC032	

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	---	62	$^\circ C/W$

**30V Dual P-Channel MOSFETs****Electrical Characteristics (T_J=25°C, unless otherwise noted)****Off Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250uA	-30	---	---	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} = -24V, V _{GS} =0V	---	---	-1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V, V _{DS} =0V	---	---	±100	nA

On Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} = -10V, I _D = -4A	---	---	32	mΩ
		V _{GS} = -4.5V, I _D = -2A	---	---	50	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D = -250uA	-1	---	-2.5	V
g _{fs}	Forward Transconductance	V _{DS} = -5V, I _D = -7A	---	10	---	S

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q _g	Total Gate Charge	V _{DS} = -20V, V _{GS} = -4.5V, I _D = -7A	---	9.5	---	nC
Q _{gs}	Gate-Source Charge		---	3.64	---	
Q _{gd}	Gate-Drain Charge		---	4	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} = -24V, V _{GS} = -10V, R _G = 3.3Ω, I _D = -1A	---	6.2	---	nS
T _r	Rise Time		---	2.6	---	
T _{d(off)}	Turn-Off Delay Time		---	30.9	---	
T _f	Fall Time		---	20.8	---	
C _{iss}	Input Capacitance	V _{DS} = -15V, V _{GS} =0V, F=1MHz	---	945	---	pF
C _{oss}	Output Capacitance		---	105	---	
C _{riss}	Reverse Transfer Capacitance		---	68.5	---	
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	8	---	Ω

Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V _{SD}	Diode Forward Voltage	V _{GS} = 0V, I _S = -2.3A	---	---	-1.2	V

NOTES :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.



Characteristics Curves

FIG. 1-Normalized $V_{GS(th)}$ vs. T_J

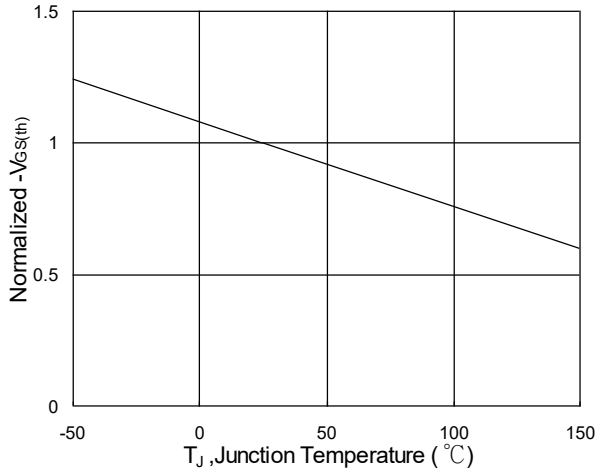


FIG. 2-Normalized $R_{DS(on)}$ vs. T_J

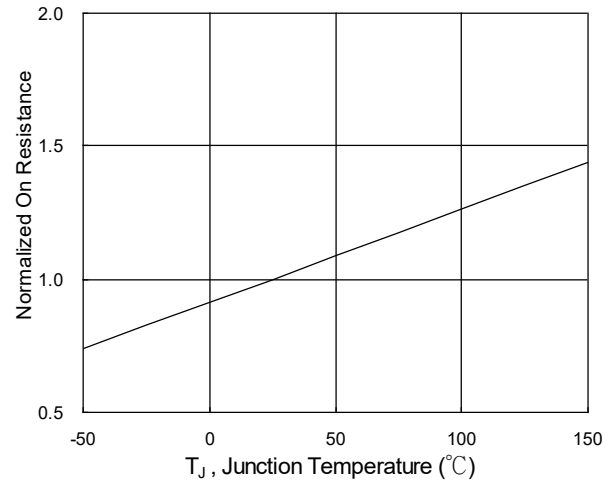


FIG. 3-Source-Drain Diode Forward

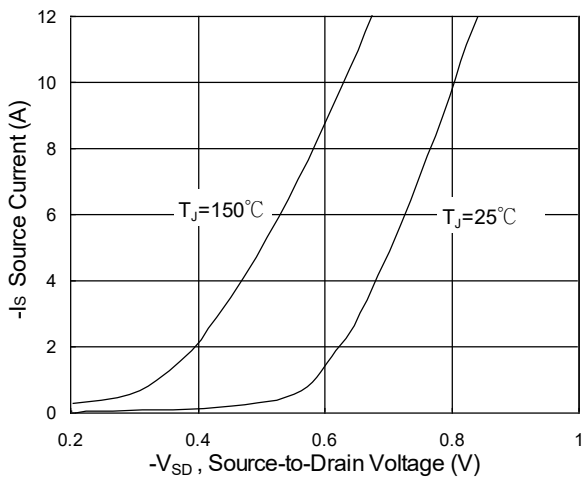


FIG. 4-Gate Charge Characteristics

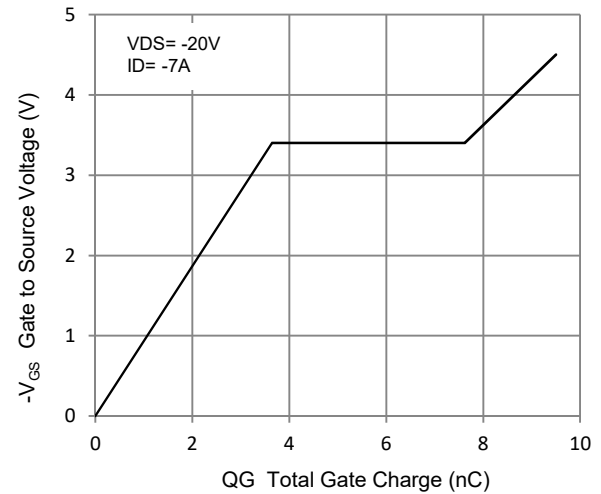


Fig. 5-Capacitance

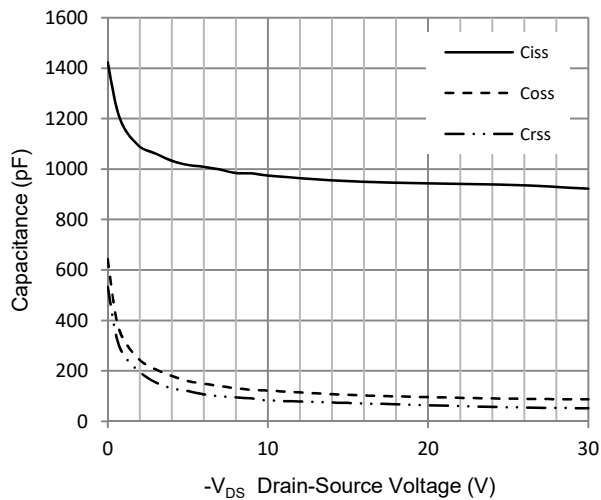
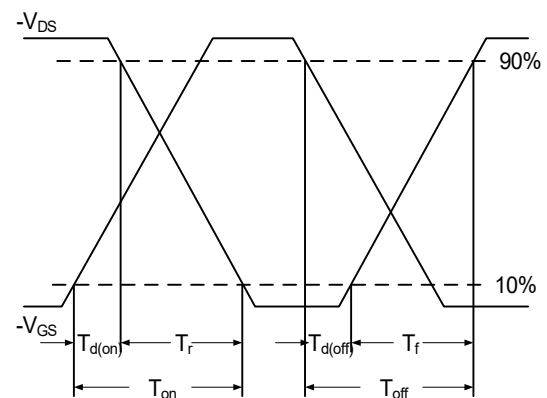
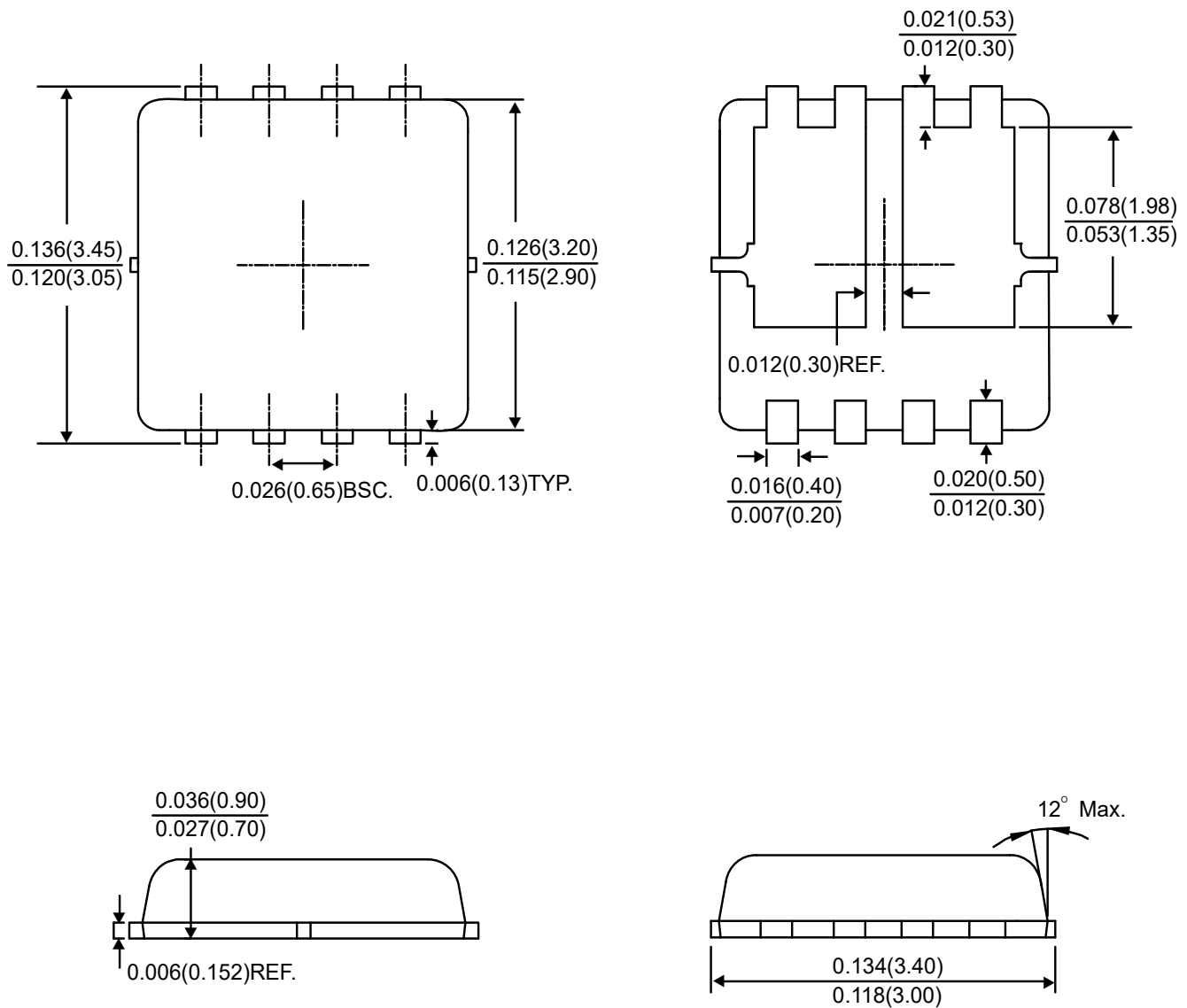


Fig. 6-Switching Time Waveform





Package Outline Dimensions



PPAK3X3 Dual

Dimensions in inches and (millimeters)



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