P3MPC028

30V P-Channel MOSFETs

BV_{DSS}	$R_{DS(ON)}$	I_D
-30 V	28 mΩ	-25.7 A

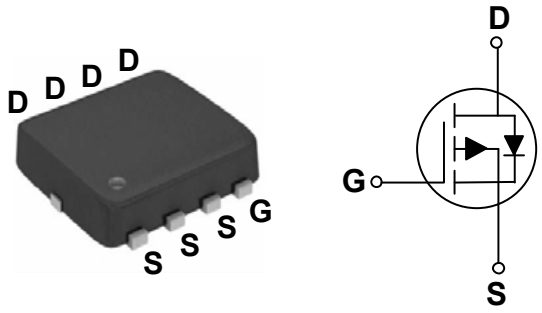
General Description

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.

Features

- $R_{DS(ON)} \leqq 28m\Omega @ V_{GS}$= -10V
- Fast switching
- Green Device Available

PPAK3X3 Pin Configuration



Applications

- MB / VGA / V_{CORE}
- POL Applications
- LED Application
- Load Switch

Absolute Maximum Ratings T_C=25°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 (T_C=25°C)	-25.7	A
	Drain Current - Continuous (T_C=100°C)	-16.4	A
I_{DM}	Drain Current - Pulsed (NOTE 1)	-60.8	A
P_D	Power Dissipation (T_C=25°C)	16.3	W
T_J	Operating Junction Temperature Range	-55 to 150	°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
Marking Code		PC028	

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	---	75	°C/W
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	7.67	°C/W

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= -0.5A	---	---	28	mΩ
		V_{GS}= -4.5V , I_D= -0.5A	---	---	50	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D= -250uA	-1	-1.5	-2	V
gfs	Forward Transconductance	V_{DS}= -5V , I_D= -7.5A	---	14	---	S

Dynamic and switching Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Q_g	Total Gate Charge	V_{DS}= -15V , V_{GS}= -10V , I_D= -15A	---	27.3	---	nC
Q_{gs}	Gate-Source Charge		---	5.19	---	
Q_{gd}	Gate-Drain Charge		---	5.32	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}= -15V , V_{GS}= -10V , R_{GEN}= 6Ω , I_D= -1A	---	3.2	---	nS
T_r	Rise Time		---	22.8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	105.2	---	
T_f	Fall Time		---	47.8	---	
C_{iss}	Input Capacitance	V_{DS}= -15V , V_{GS}=0V , F=1MHz	---	1223	---	pF
C_{oss}	Output Capacitance		---	135	---	
C_{rss}	Reverse Transfer Capacitance		---	116	---	
R_g	Gate Resistance	V_{GS}=0V , V_{DS}=0V , F=1MHz	---	15	---	Ω

Drain-Source Diode Characteristics and Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	V_{GS}= 0V , I_S= -0.5A	---	---	-1.3	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- Drain-Source On-Resistance

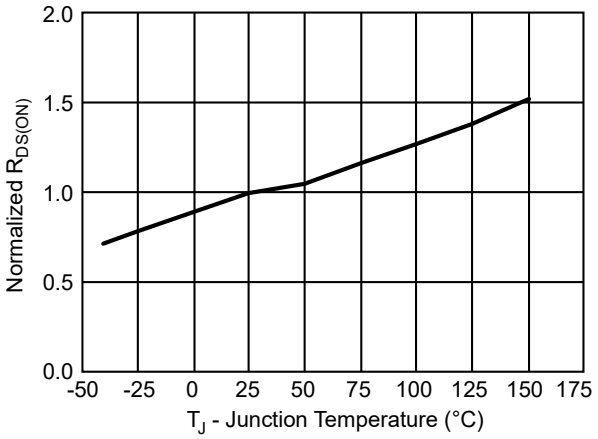


FIG. 2- Gate Threshold Voltage

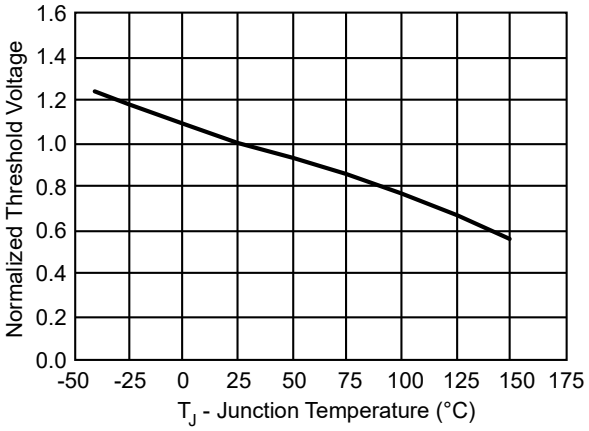


FIG. 3-Source-Drain Diode Forward

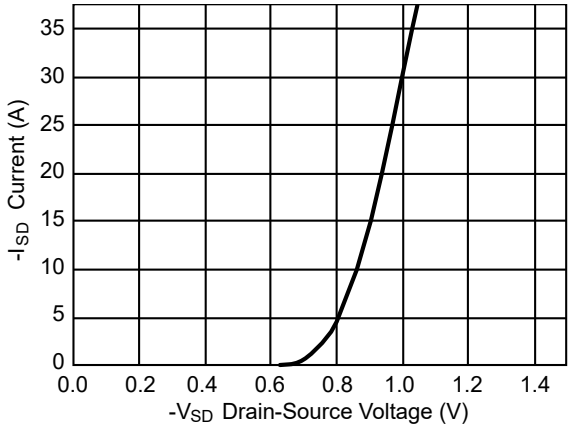


FIG. 4- Gate Charge Characteristics

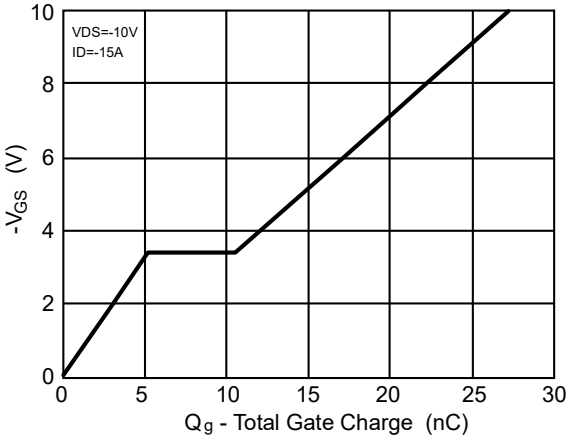


FIG. 5- Power Dissipation

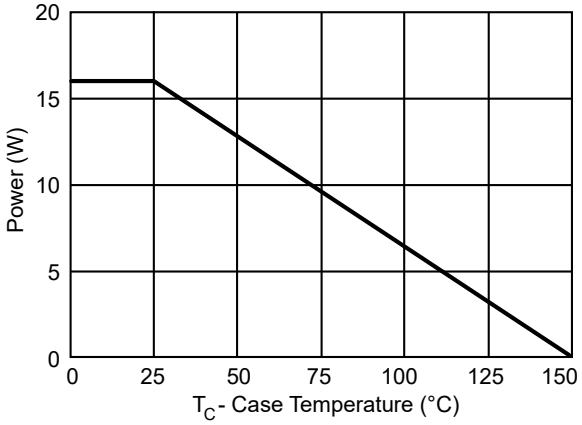
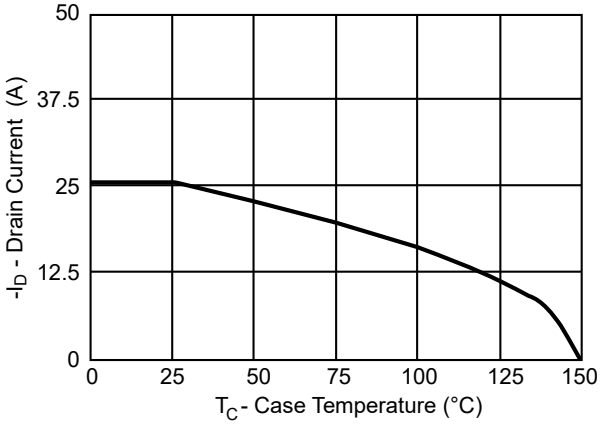
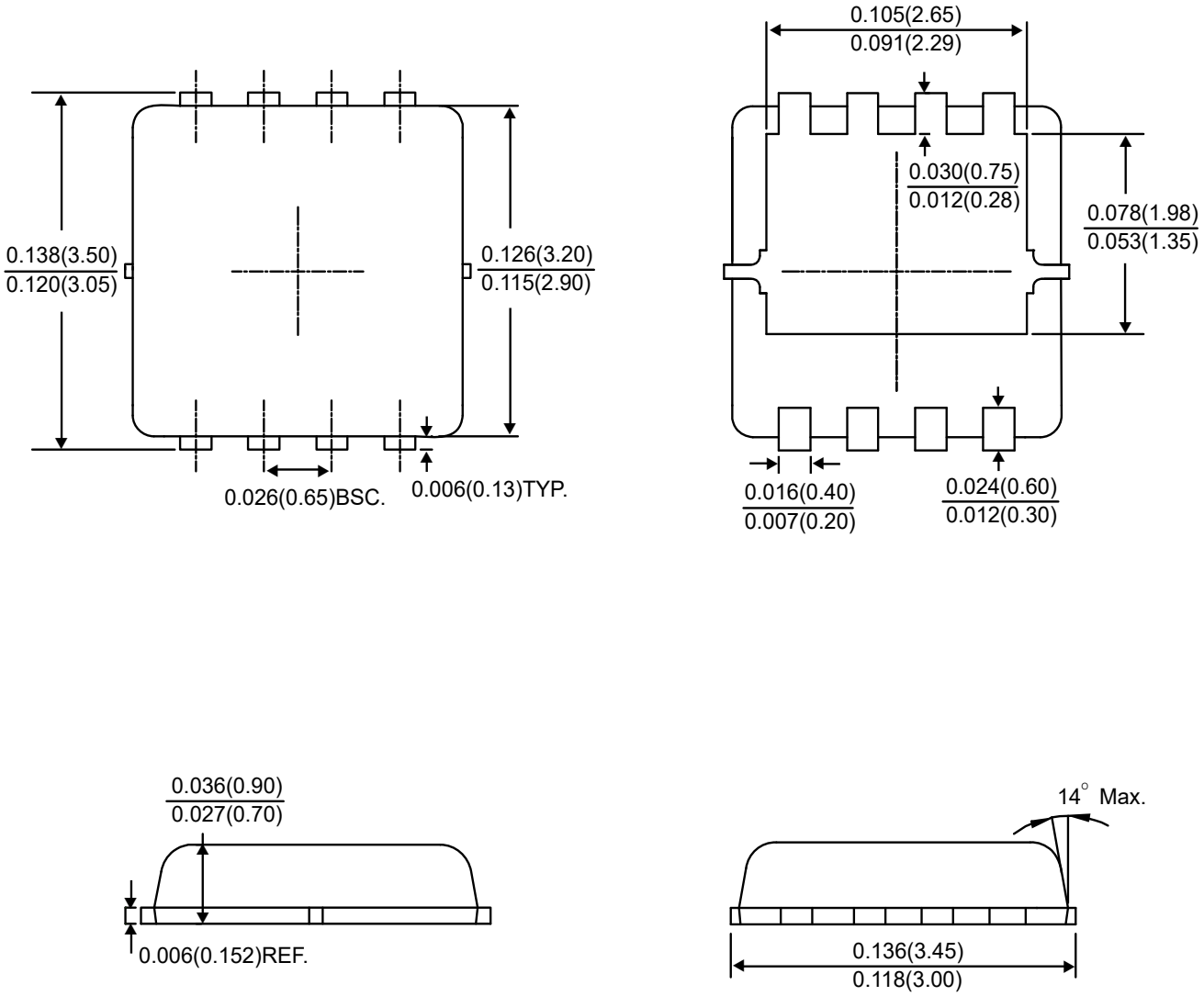


FIG. 6- Drain Current



Package Outline Dimensions



PPAK3X3

Dimensions in inches and (millimeters)

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