PECJ1216A

Description

PECJ P-channel Enhancement Mode Power MOSFET

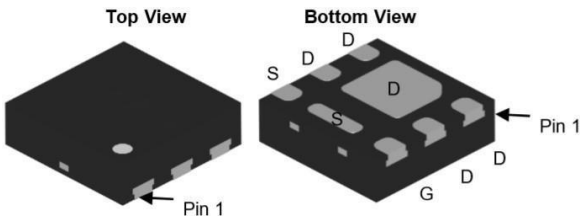
Features

- -12V, -16A
  $R_{DS(ON)}$<18mΩ @ V_{GS} = -4.5V
  $R_{DS(ON)}$<24mΩ @ V_{GS} = -2.5V
- Advanced Trench Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired

Application

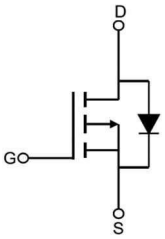
- Load Switch
- PWM Application
- Power management

RoHS



DFN2X2-6L

Marking and pin Assignment



Schematic Diagram

Package Marking and Ordering Information

Device Marking	Device	OUTLINE	Device Package	Reel Size	Reel (PCS)	Per Carton (PCS)
1216	PECJ1216A	TAPING	DFN2X2-6L	7inch	4000	160000

Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		-12	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current	T_C = 25℃	-16	A
		T_C = 100℃	-10	A
I_{DM}	Pulsed Drain Current note1		-64	A
P_D	Power Dissipation	T_C = 25℃	8	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case		15.6	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= -250μA	-12	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}= -12V, V_{GS}=0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= -250μA	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}= -4.5V, I_D= -8A	-	14	18	mΩ
		V_{GS}= -2.5V, I_D= -5A	-	18	24	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= -6V, V_{GS}=0V, f=1.0MHz	-	2700	-	pF
C_{oss}	Output Capacitance		-	680	-	pF
C_{rss}	Reverse Transfer Capacitance		-	590	-	pF
Q_g	Total Gate Charge	V_{DS}= -6V, I_D= -8A, V_{GS}= -4.5V	-	35	-	nC
Q_{gs}	Gate-Source Charge		-	5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	10	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = -6V, I_D= -8A, V_{GS}= -4.5V, R_{GEN}=2.5Ω	-	11	-	ns
t_r	Turn-on Rise Time		-	35	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
t_f	Turn-off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-16	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-64	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -16A	-	-0.8	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

Figure1: Output Characteristics

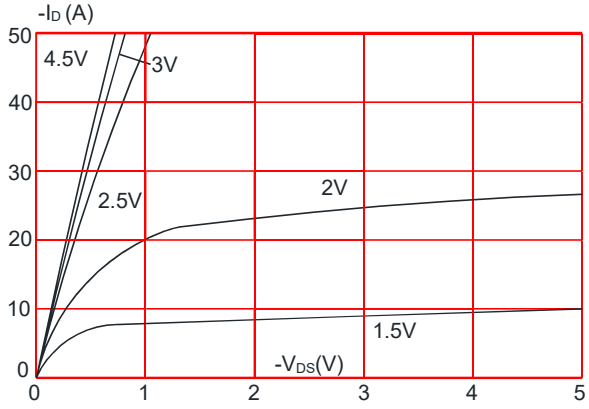


Figure 2: Typical Transfer Characteristics

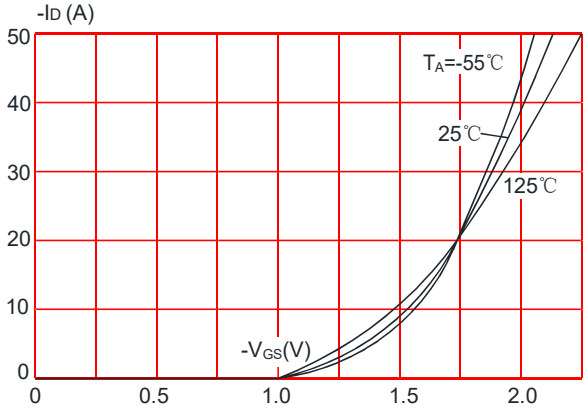


Figure 3: On-resistance vs. Drain Current

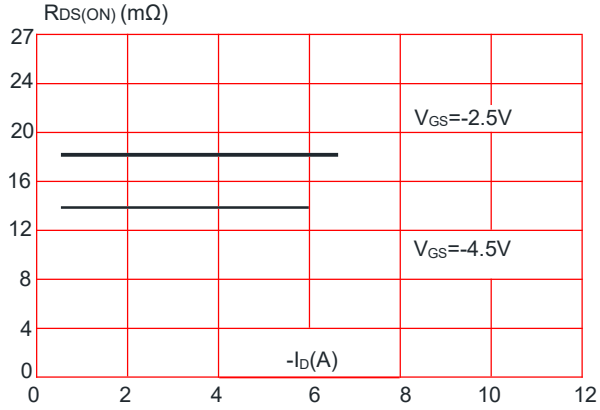


Figure 4: Body Diode Characteristics

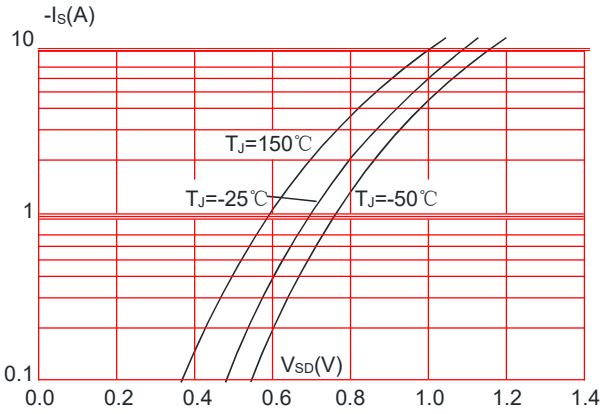


Figure 5: Gate Charge Characteristics

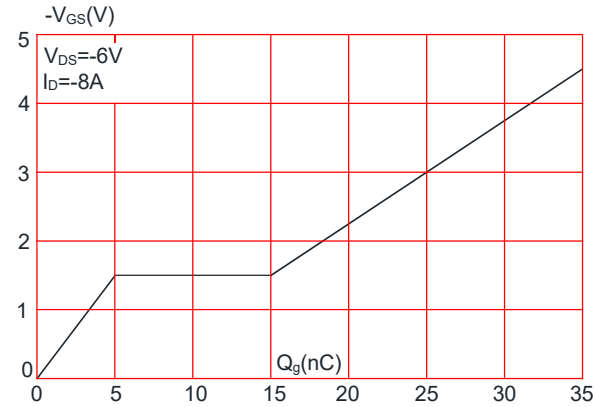


Figure 6: Capacitance Characteristics

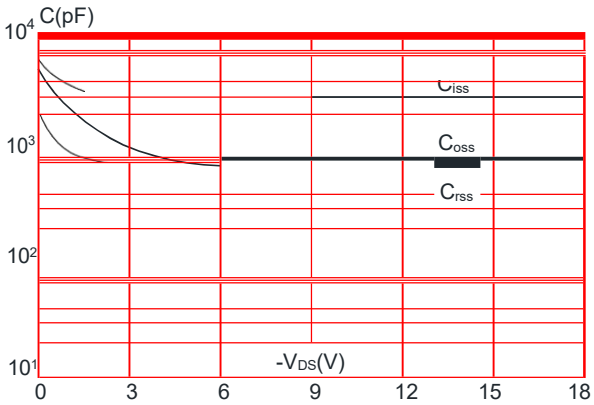


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

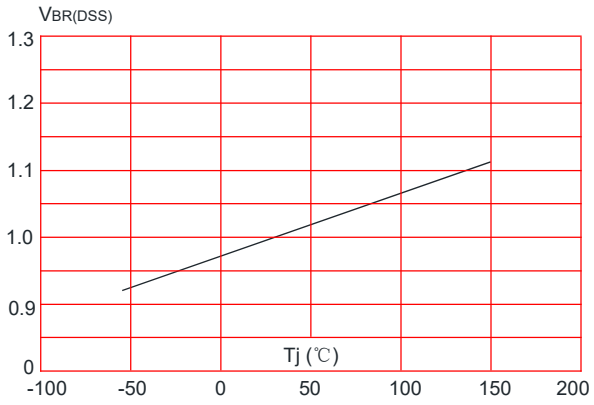


Figure 8: Normalized on Resistance vs. Junction Temperature

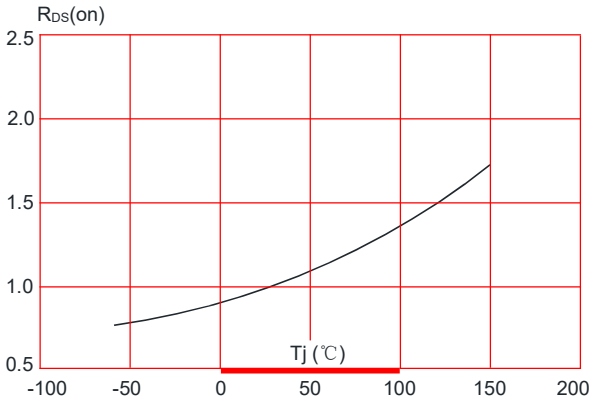


Figure 9: Maximum Safe Operating Area

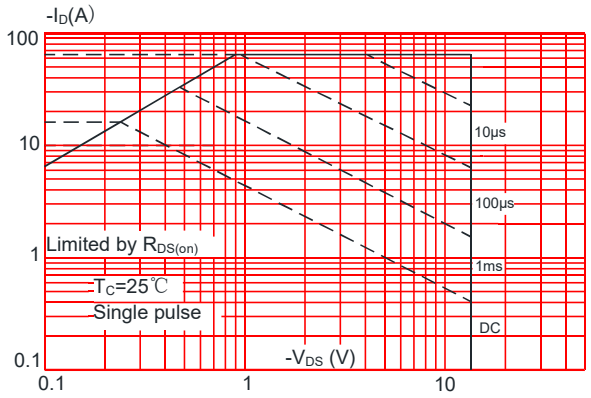


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

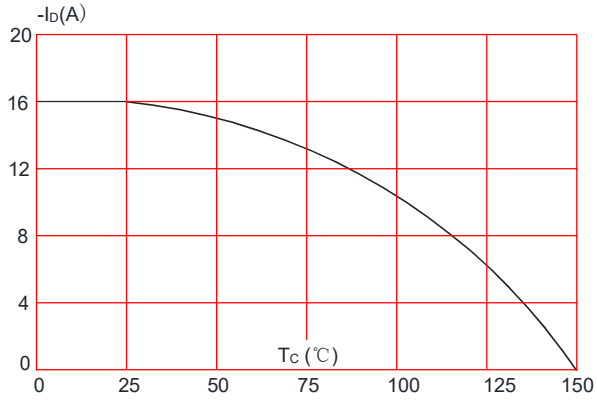
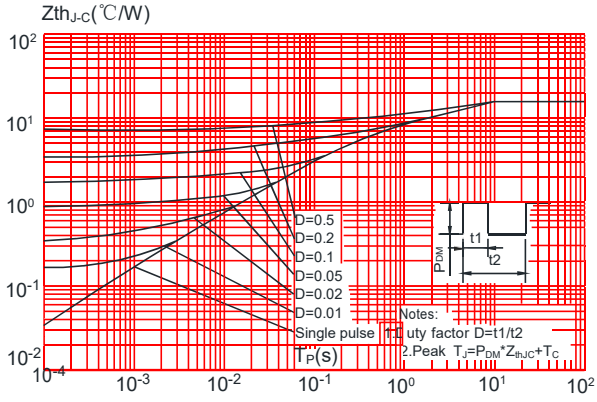
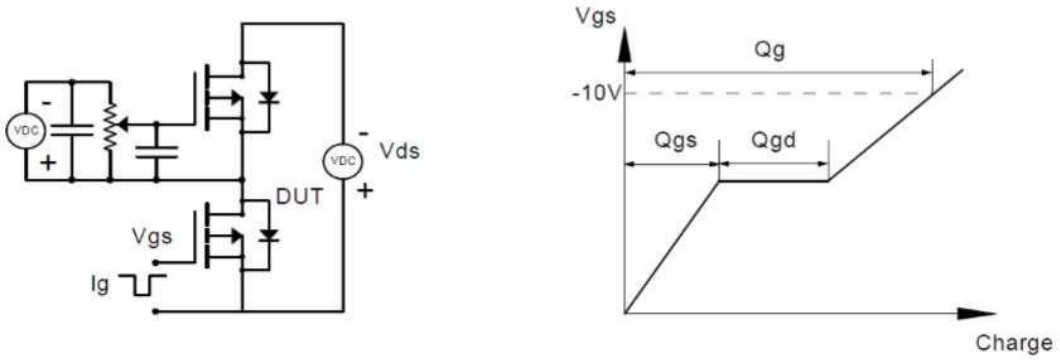


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

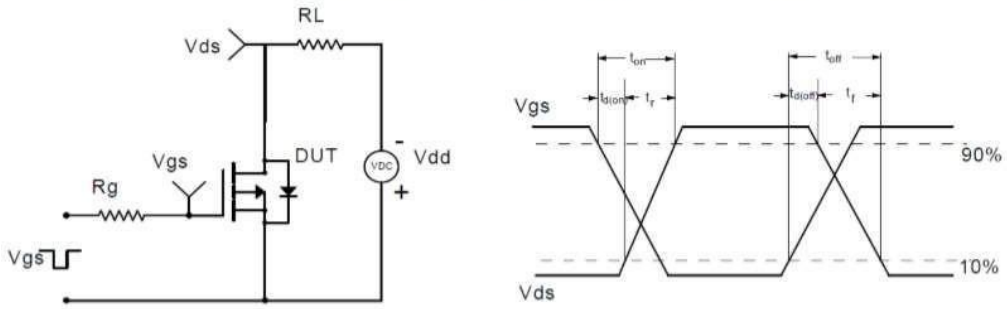


Test Circuit

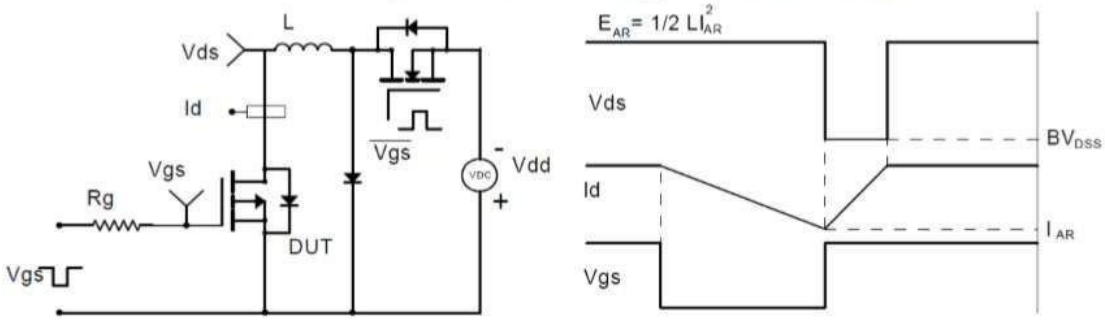
Gate Charge Test Circuit & Waveform



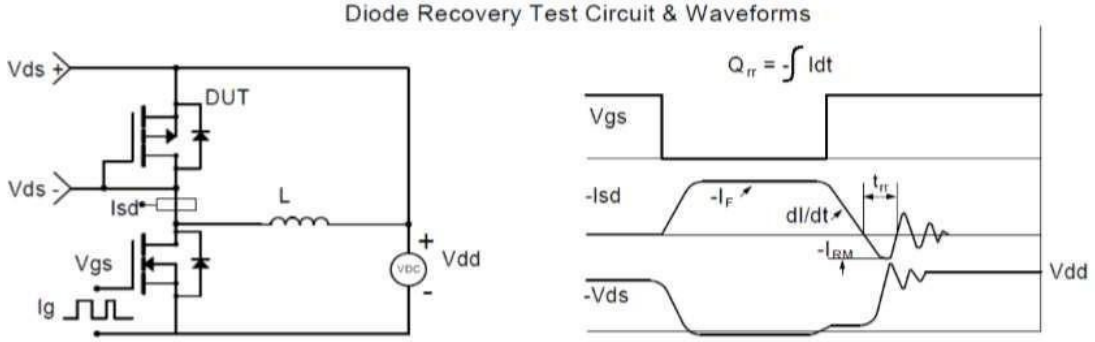
Resistive Switching Test Circuit & Waveforms



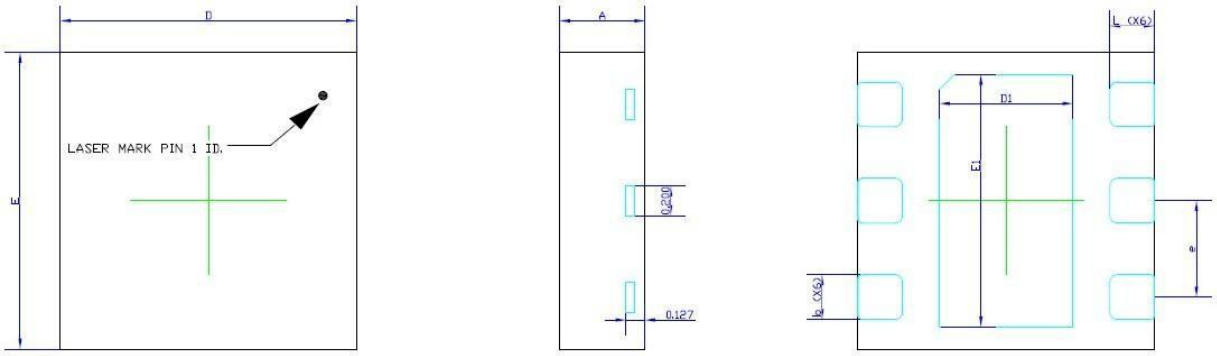
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Mechanical Data- DFN2X2-6L



TOP VIEW　　SIDE VIEW　　BOTTOM VIEW

COMMON DIMENSION (MM)			
PKG	DFN2020-6L		
SYMBOL	MIN.	NOM.	MAX
A	0.527	0.552	0.577
b	0.20	0.25	0.30
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D1	0.80	0.90	1.00
E1	1.60	1.70	1.80
e		0.65 REF.	
L	0.25	0.30	0.35