

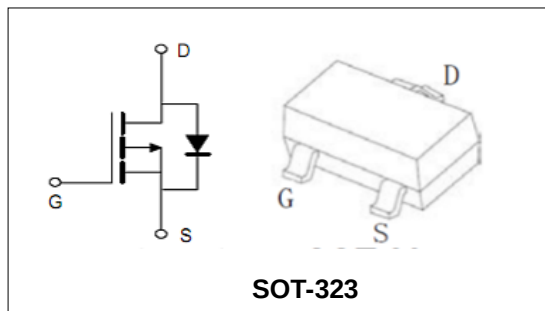
**-20V/-1.2A P-Channel Enhancement Mode MOSFET****Features**

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

Applications

- PWM application
- Load switch

BVDSS	-20	V
ID	-1.2	A
RDSON@VGS=-4.5V	96	mΩ
RDSON@VGS=-2.5V	117	mΩ
RDSON@VGS=-1.8V	118	mΩ

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PT2101C	SOT-323	2101C	7inch	3000PCS	180000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit	
Common Ratings (TC=25°C Unless Otherwise Noted)					
V _{(BR)DSS}	Drain-Source Breakdown Voltage		-20	V	
V _{GS}	Gate-Source Voltage		±12	V	
T _J	Maximum Junction Temperature		150	°C	
T _{STG}	Storage Temperature Range		-55 to 150	°C	
I _S	Diode Continuous Forward Current	TA =25°C	-1.2	A	
Mounted on Large Heat Sink					
I _{DM}	Pulse Drain Current Tested (Sillicon Limit)	(Note1)	TA =25°C	-3	A
I _D	Continuous Drain current		TA =25°C	-1.2	A
P _D	Maximum Power Dissipation		TA =25°C	0.25	W
R _{θJA}	Thermal Resistance Junction-to-Ambient		(Note2)	500	°C/W

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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=-20V,VGS=0V	--	--	-1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±12V,VDS=0V	--	--	±100	uA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-0.45	0.6	-0.9	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=-4.5V, ID=-1A	--	96	100	mΩ
		VGS=-2.5V, ID=-0.5A	--	117	130	mΩ
		VGS=-1.8V, ID=-0.3A	--	118	200	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= -6V, VGS=0V, F=1MHz	--	557	--	pF
C _{oss}	Output Capacitance		--	359	--	pF
C _{rss}	Reverse Transfer Capacitance		--	311	--	pF
Q _g	Total Gate Charge	VDS= -6V, ID= -2.3A, VGS= -4.5V	--	5.8	--	nC
Q _{gs}	Gate-Source Charge		--	0.85	--	nC
Q _{gd}	Gate-Drain Charge		--	1.7	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=-6V, ID=-1A, RL=6Ω, RG=6Ω, VGS=-4.5V	--	13	--	nS
t _r	Turn-on Rise Time		--	36	--	nS
t _{d(off)}	Turn-off Delay Time		--	42	--	nS
t _f	Turn-off Fall Time		--	34	--	nS
Source- Drain Diode Characteristics@ T _J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=-1A,VGS=0V	--	--	-1.2	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



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Typical Characteristics

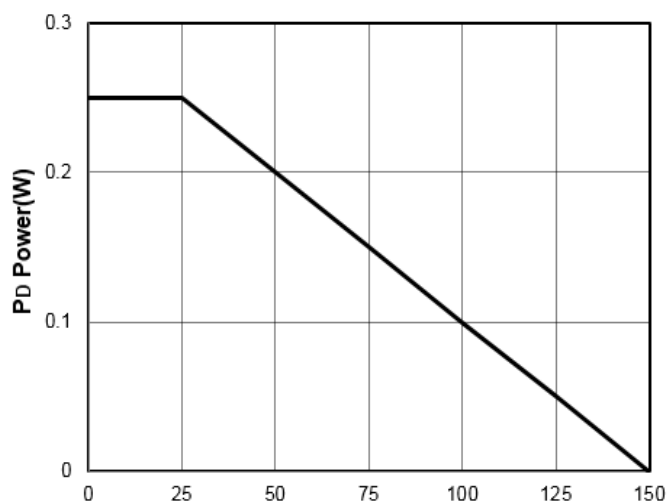


Figure1: T_j Junction Temperature (°C)

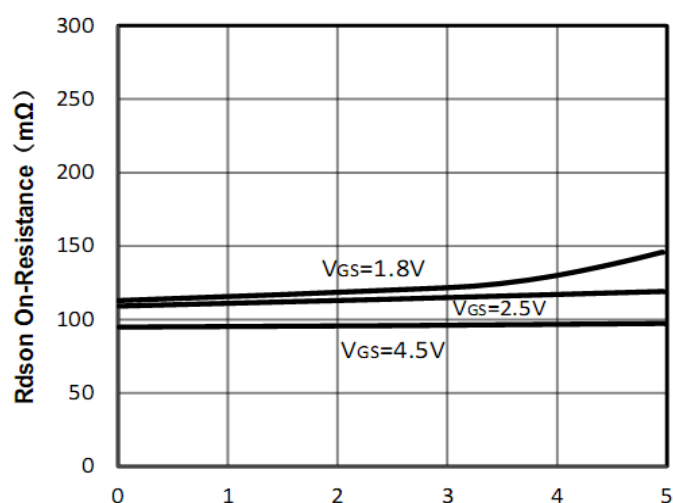


Figure2: -I_D Drain Current (A)

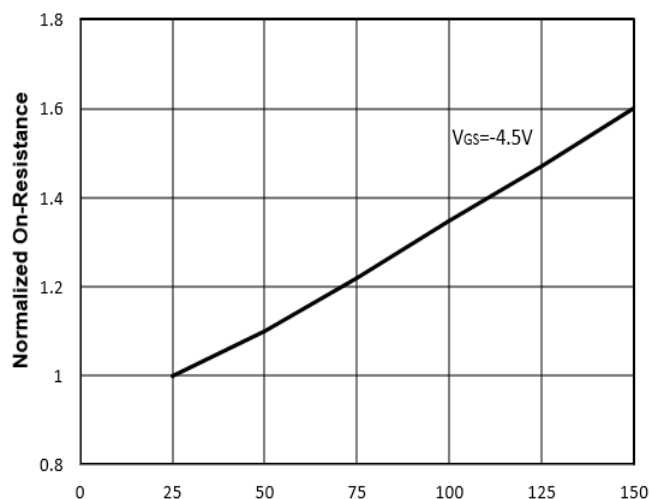


Figure3: T_j Junction Temperature (°C)

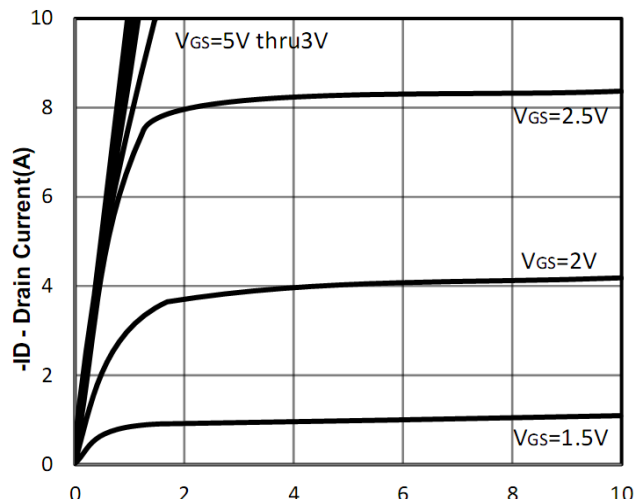


Figure4: -V_{DS} Drain-Source Voltage (V)

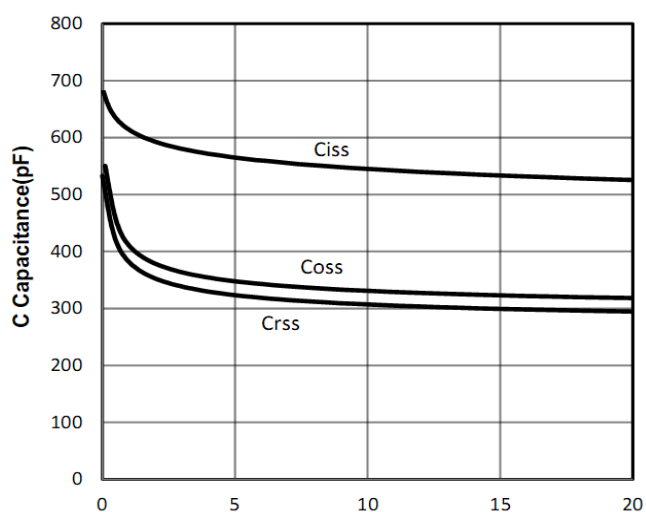


Figure5: -V_{DS} Drain-Source Voltage (V)

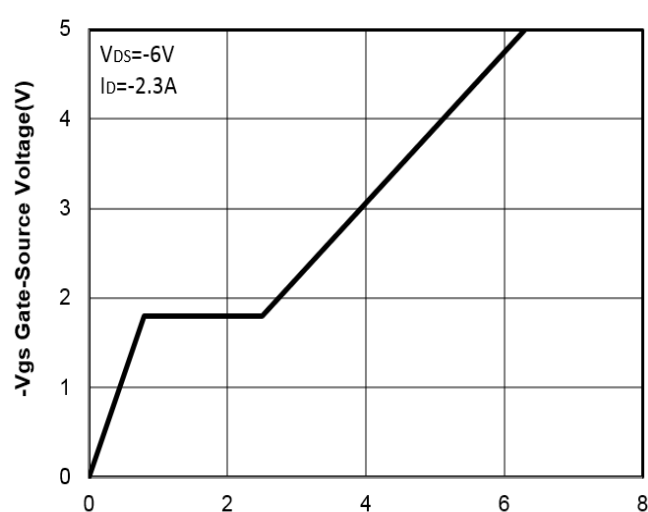


Figure6: Q_g Gate Charge (nC)



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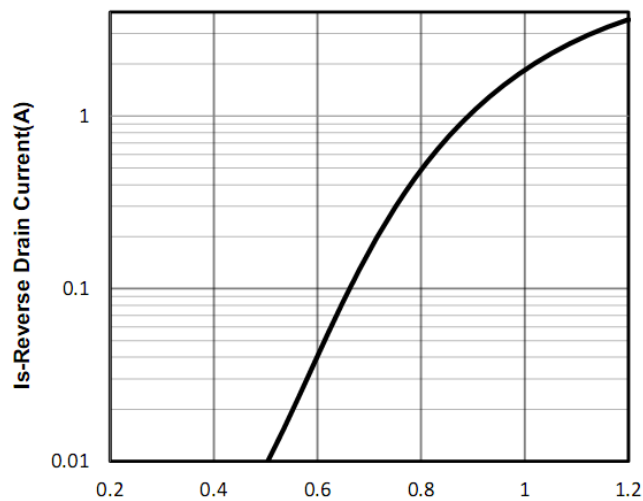


Figure7: -Vsd Source-Drain Voltage (V)

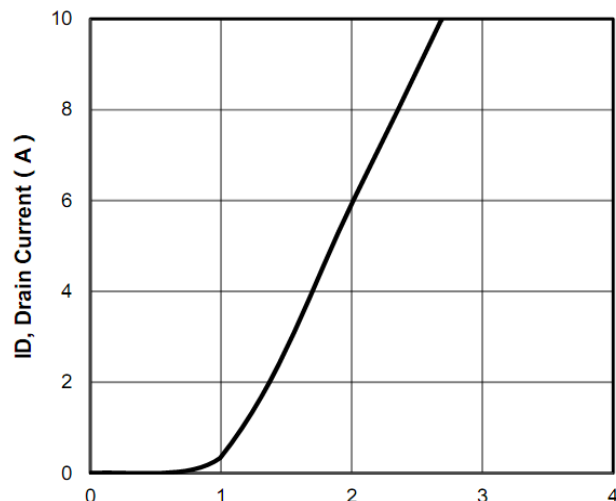


Figure8: -Vgs Gate-Source Voltage (V)

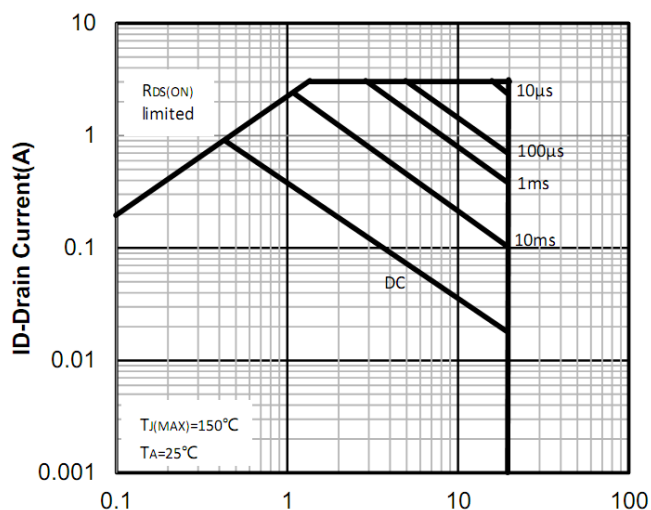


Figure9: -Vds Drain-Source Voltage (V)

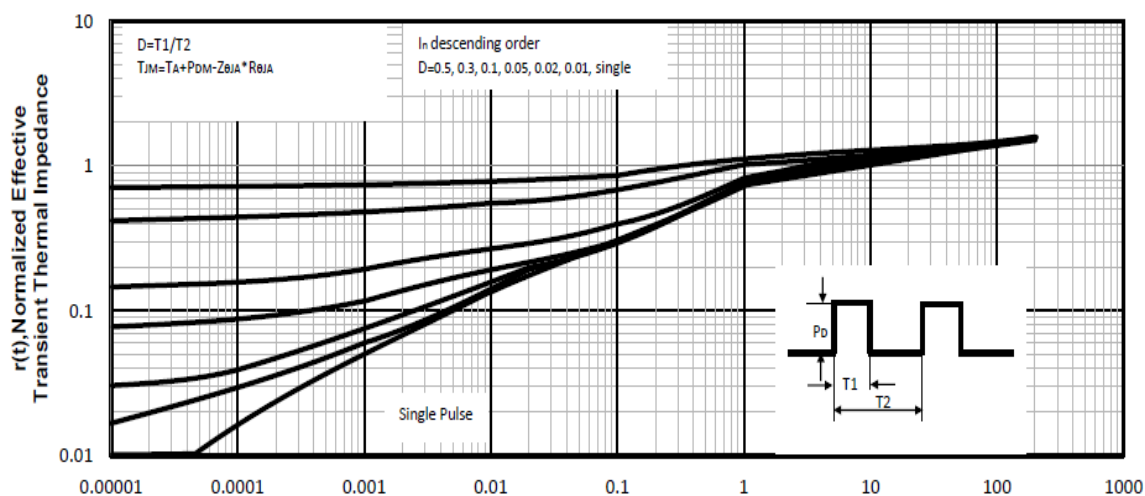
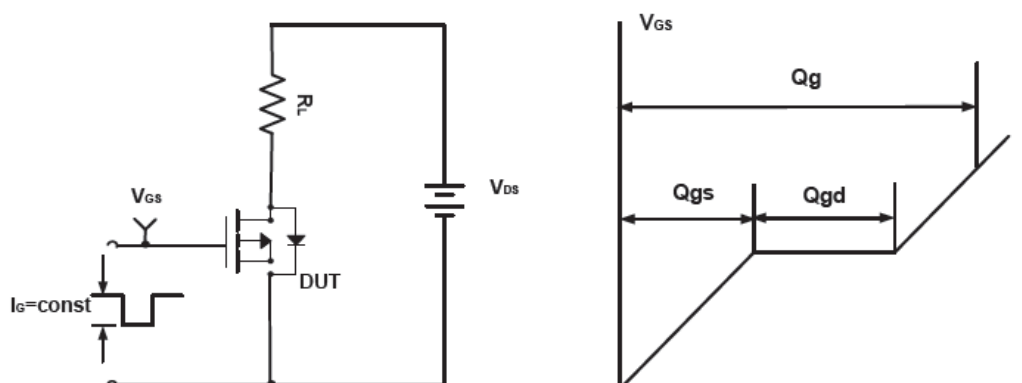
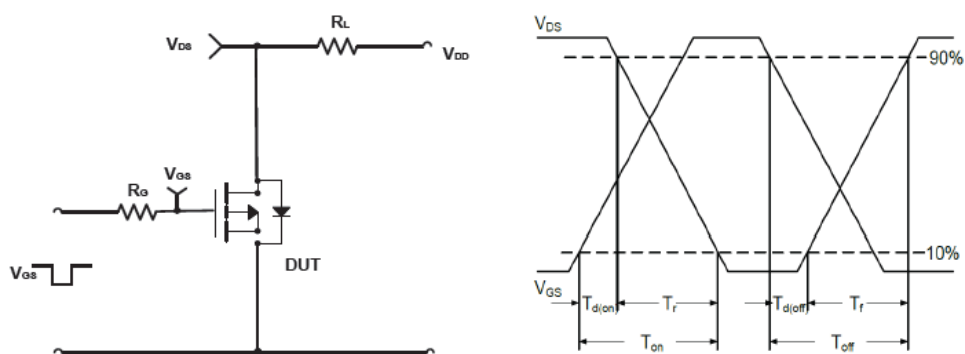
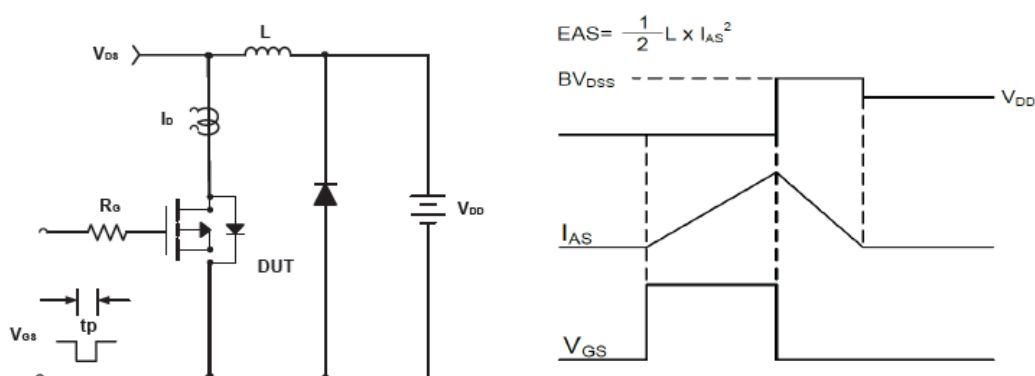


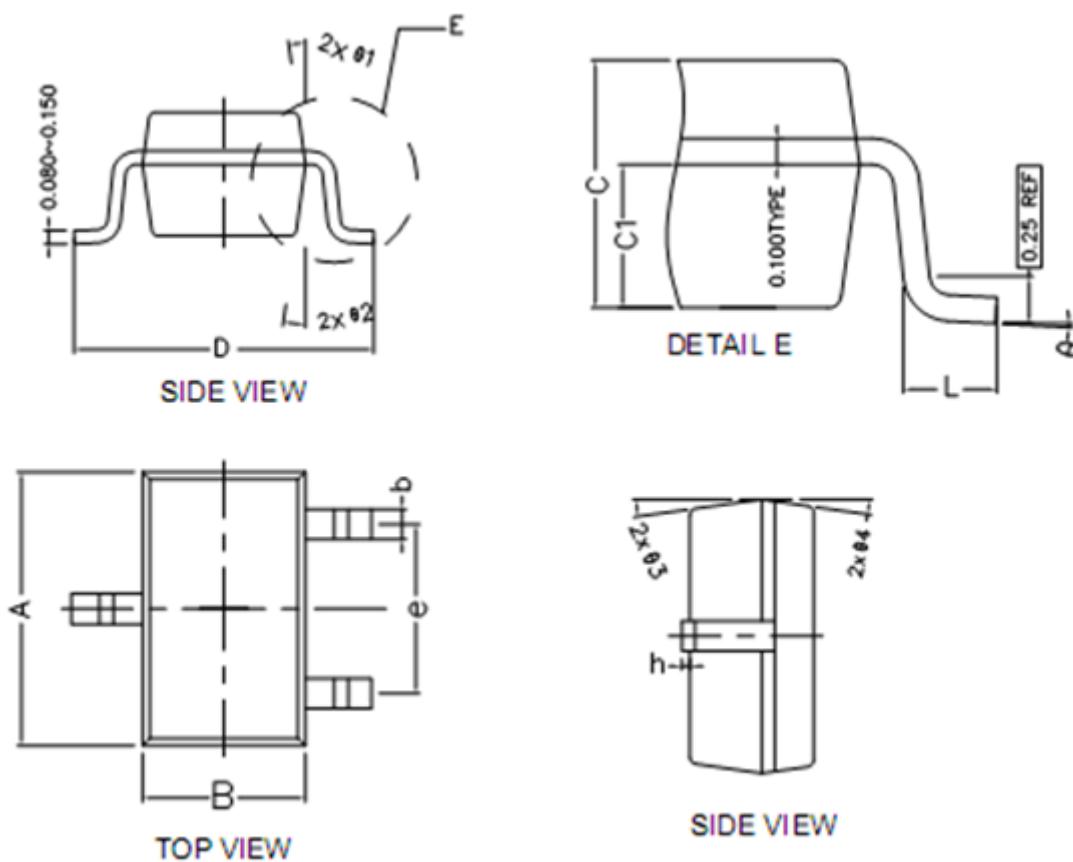
Figure10: Square Wave Pulse Duration (sec)

**-20V/-1.2A P-Channel Enhancement Mode MOSFET****Test Circuit and Waveform:****Figure A Gate Charge Test Circuit & Waveforms****Figure B Switching Test Circuit & Waveforms****Figure C Unclamped Inductive Switching Circuit & Waveforms**



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SOT-323 Package Outline Dimensions (Units: mm)



COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.000	2.100	2.200
B	1.150	1.250	1.350
C	0.900	0.950	1.000
C1	0.500	0.550	0.600
D	2.100	2.300	2.500
L	0.220	0.360	0.500
b	0.200	0.250	0.400
h	0.020	0.050	0.100
e	1.300 TYPE		
θ_1	8° TYPE		
θ_2	8° TYPE		
θ_3	8° TYPE		
θ_4	8° TYPE		
θ	0~8° TYPE		