

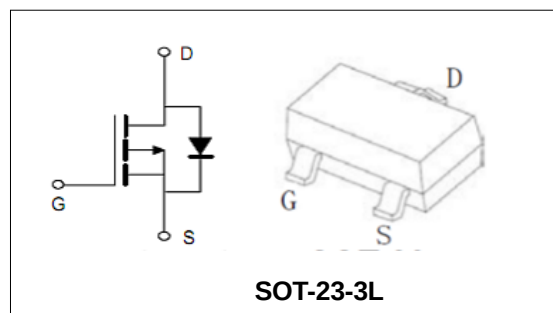
**-20V/-7A P- Channel Advanced Power MOSFET****Features**

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

BVDSS	-20	V
ID	-7	A
RDSON@VGS=-4.5V	17	mΩ
RDSON@VGS=-2.5V	21	mΩ

Applications

- Low Side Load Switch
- Battery Switch
- Optimized for Power Management Applications for Portable Products, such as Aeromodelling, Power bank, Brushless motor, Main board , and Others

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PTL20P07B	SOT-23-3L	20P07B	7inch	3000PCS	180000PCS

Absolute Maximum Ratings

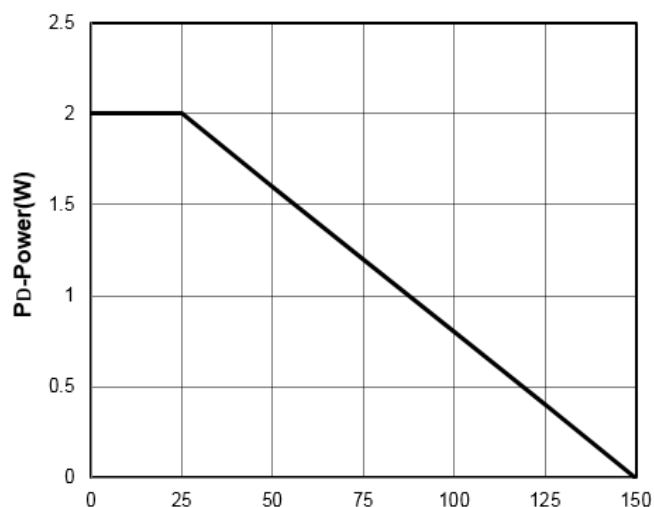
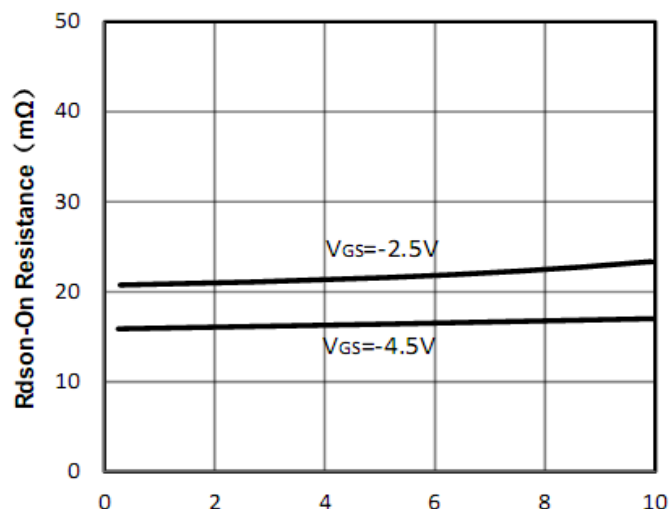
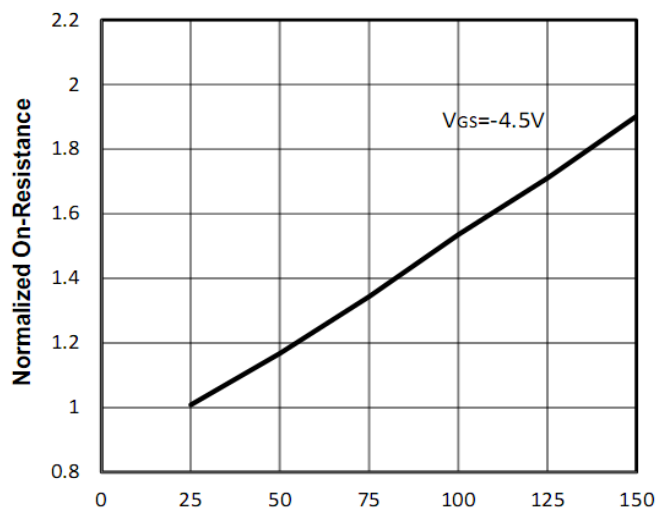
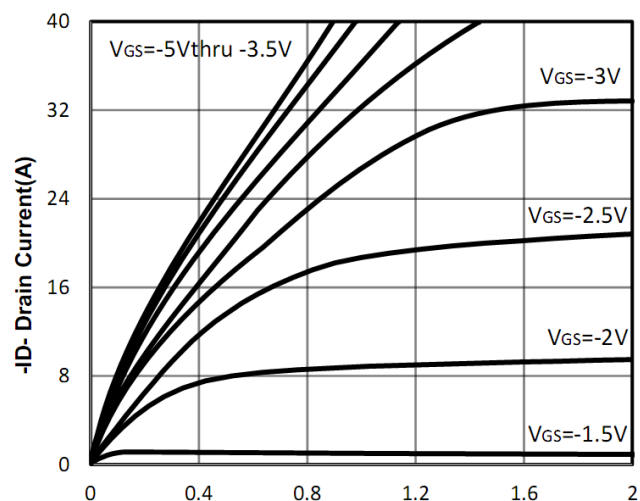
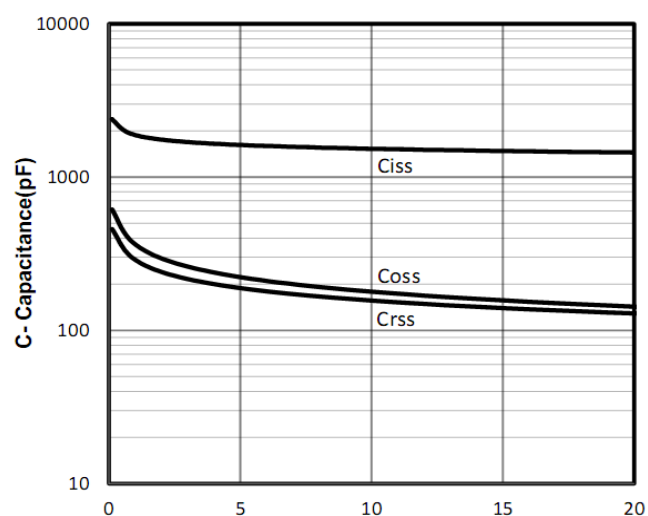
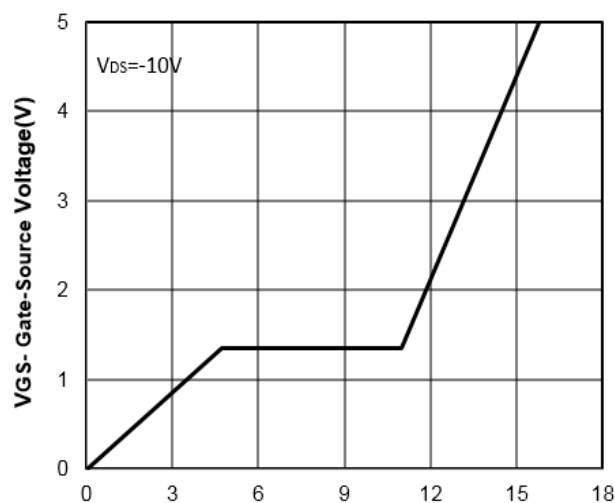
Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		-20	V
V _{GS}	Gate-Source Voltage		±12	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	TA =25°C	-7	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Silicon Limit) (Note1)	TA =25°C	-28	A
I _D	Continuous Drain current	TA =25°C	-7	A
P _D	Maximum Power Dissipation	TA =25°C	2	W
R _{θJA}	Thermal Resistance Junction-to-Ambient (Note2)		62.5	°C/W

**-20V/-7A P- Channel Advanced Power MOSFET**

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 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	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-0.4	--	-1	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=-4.5V, ID=-5A	--	17	22	mΩ
		VGS=-2.5V, ID=-4A	--	21	30	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= -10V, VGS=0V, F=1MHz	--	1650	--	pF
C _{oss}	Output Capacitance		--	189	--	pF
C _{rss}	Reverse Transfer Capacitance		--	163	--	pF
Q _g	Total Gate Charge	VDS= -10V, ID= -6A, VGS= -4.5V	--	15.2	--	nC
Q _{gs}	Gate-Source Charge		--	4.7	--	nC
Q _{gd}	Gate-Drain Charge		--	6.3	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=-10V, ID=-6A, RG=3Ω, VGS=-4.5V	--	19.6	--	nS
t _r	Turn-on Rise Time		--	25	--	nS
t _{d(off)}	Turn-off Delay Time		--	38.3	--	nS
t _f	Turn-off Fall Time		--	21.4	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=-6A,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.

**-20V/-7A P- Channel Advanced Power MOSFET****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)

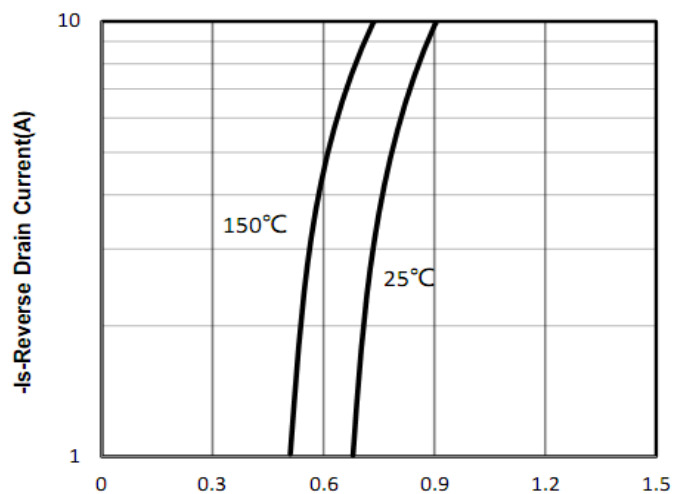


Figure7: -Vsd Source-Drain Voltage (V)

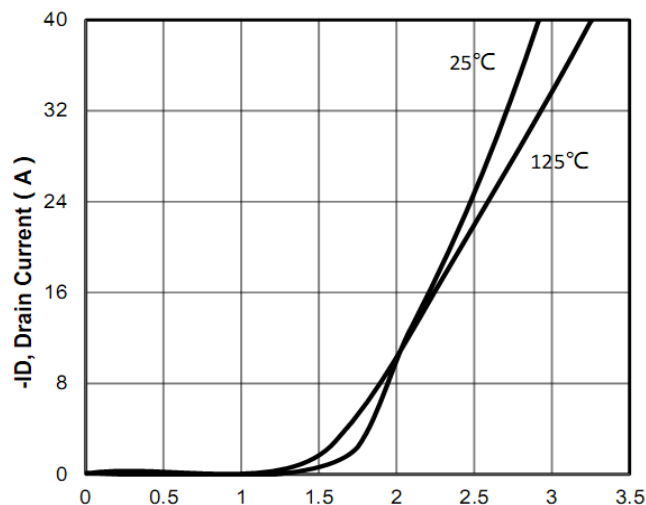


Figure8: -Vgs Gate-Source Voltage (V)

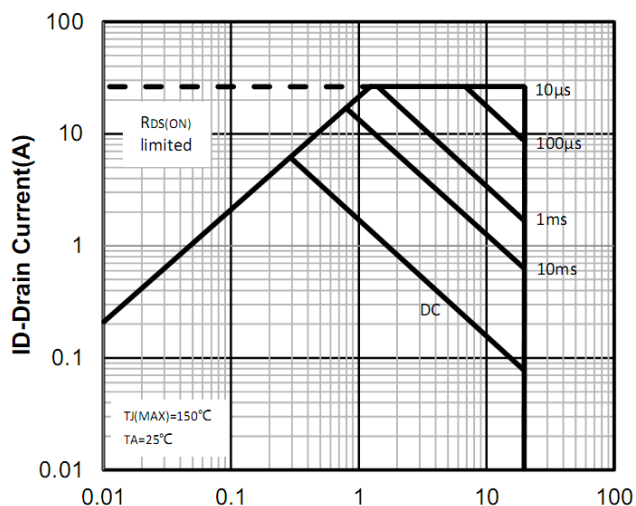


Figure9: -Vds Drain -Source Voltage (V)

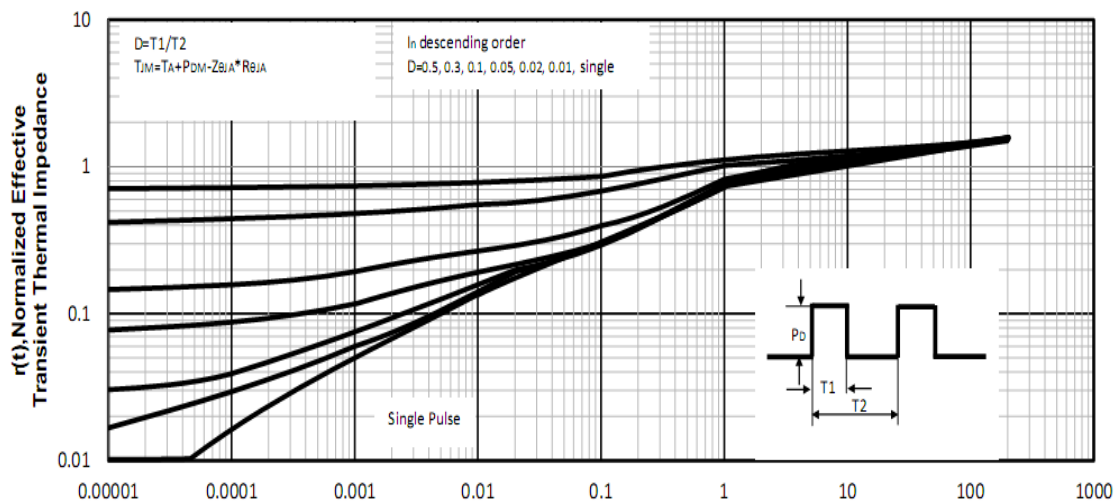


Figure10: Square Wave Pulse Duration (sec)



Test Circuit and Waveform:

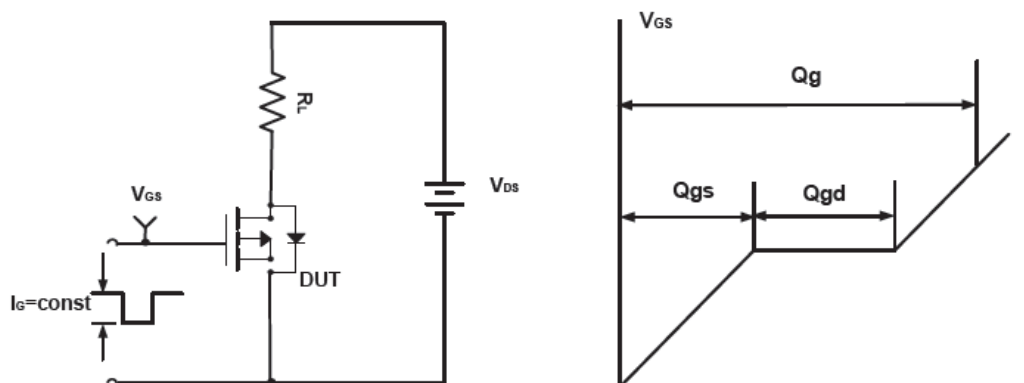


Figure A Gate Charge Test Circuit & Waveforms

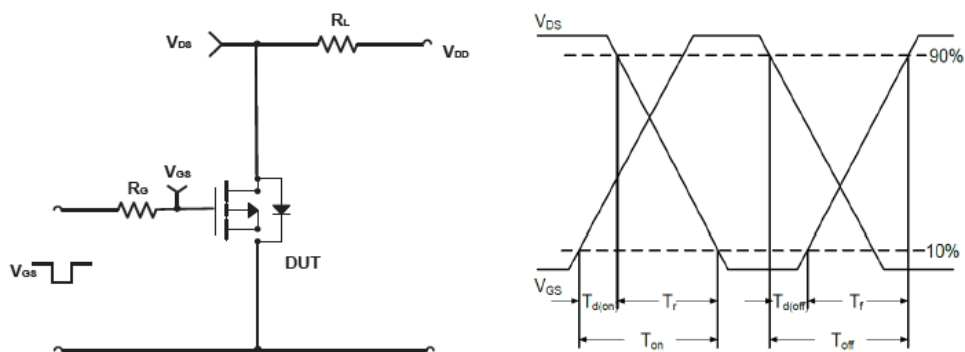
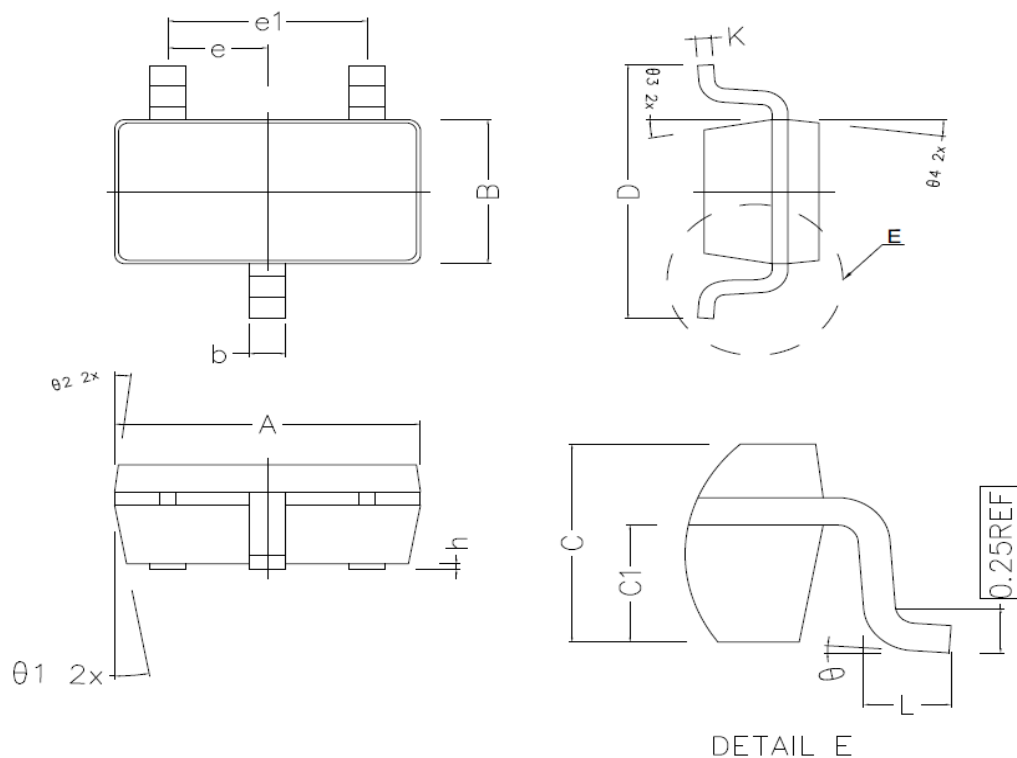


Figure B Switching Test Circuit & Waveforms

**SOT-23-3L Package Outline Dimensions (Units: mm)**

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.820	2.920	3.020
B	1.500	1.600	1.700
C	1.050	1.100	1.150
C1	0.600	0.650	0.700
D	2.650	2.800	2.950
L	0.300	0.450	0.600
b	0.280	0.350	0.420
h	0.020	0.050	0.100
K	0.120	—	0.230
e	0.950TYPE		
e1	1.900TYPE		
θ ₁	10° TYPE		
θ ₂	7° TYPE		
θ ₃	10° TYPE		
θ ₄	7° TYPE		
θ	0° ~ 8°		