

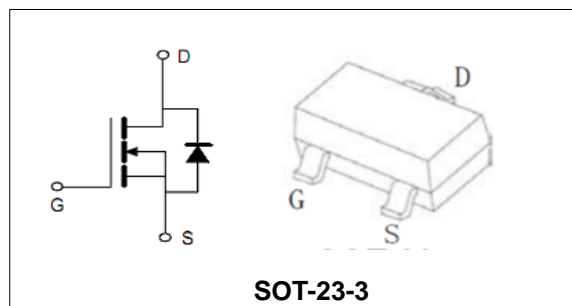
**60V/5A N-Channel Advanced Power MOSFET****Features**

- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge
- Lead free product is acquired

**Applications**

- Low Switch
- PWM Application
- Power management

BVDSS	60	V
ID	5	A
RDSON@VGS=10V	26	mΩ
RDSON@VGS=4.5V	31	mΩ

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PTL6205	SOT-23-3	6205	7inch	3000PCS	180000PCS

**Absolute Maximum Ratings**

Symbol	Parameter	Rating	Unit	
<b>Common Ratings (TC=25°C Unless Otherwise Noted)</b>				
$V_{(BR)DSS}$	Drain-Source Voltage	60	V	
$V_{GS}$	Gate-Source Voltage	±20	V	
$T_J$	Maximum Junction Temperature	150	°C	
$T_{STG}$	Storage Temperature Range	-55 to 150	°C	
$I_S$	Diode Continuous Forward Current	$T_A = 25^\circ C$	5	A
<b>Mounted on Large Heat Sink</b>				
$I_{DM}$	Pulse Drain Current (Silicon Limit) (Note1)	$T_A = 25^\circ C$	20	A
$I_D$	Continuous Drain current	$T_A = 25^\circ C$	5	A
$P_D$	Maximum Power Dissipation	$T_A = 25^\circ C$	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note2)		62.5	°C/W



## 60V/5A N-Channel Advanced Power MOSFET

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>(BR)DSS</sub>	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	60	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain current	VDS=60V,VGS=0V	--	--	1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	VDS=VGS,ID=250μA	1	1.5	2.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance (Note3)	VGS=10V, ID=5A	--	26	35	mΩ
		VGS=4.5V, ID=4A	--	31	49	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated) (Note4)</b>						
C <sub>iss</sub>	Input Capacitance	VDS= 25V, VGS=0V, F=1MHz	--	1148	--	pF
C <sub>oss</sub>	Output Capacitance		--	58.5	--	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		--	49.4	--	pF
Q <sub>g</sub>	Total Gate Charge	VDS= 30V, ID=2.5A, VGS= 10V	--	20.3	--	nC
Q <sub>gs</sub>	Gate-Source Charge		--	3.7	--	nC
Q <sub>gd</sub>	Gate-Drain Charge		--	5.3	--	nC
<b>Switching Characteristics (Note4)</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	VDD=30V, ID=5A, RG=1.8Ω, VGS=10V	--	7.6	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	20	--	nS
t <sub>d(off)</sub>	Turn-off Delay Time		--	15	--	nS
t <sub>f</sub>	Turn-off Fall Time		--	24	--	nS
<b>Source- Drain Diode Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>SD</sub>	Forward on voltage (Note3)	IS=5A,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

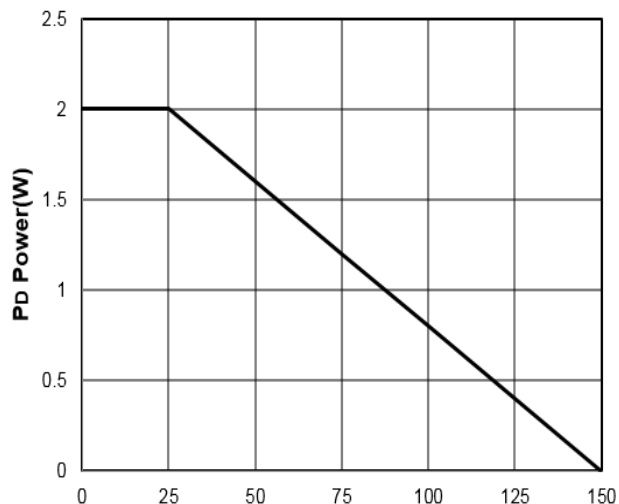


Figure1: Tj Junction Temperature (°C)

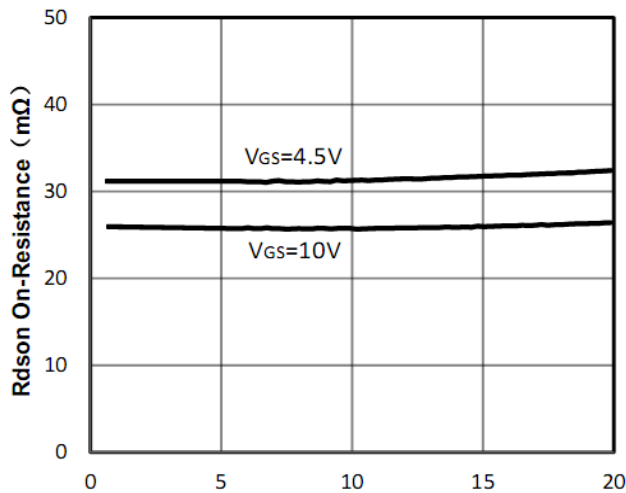


Figure2: Id Drain Current (A)

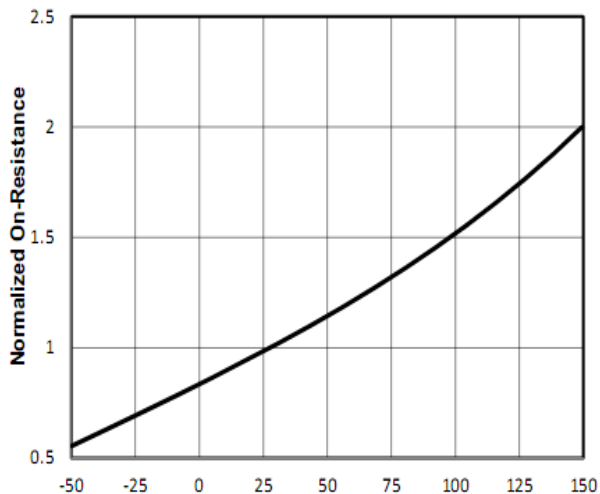


Figure3: Tj Junction Temperature (°C)

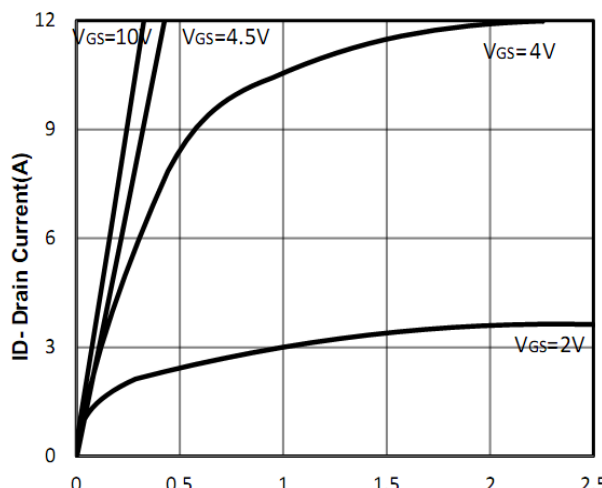


Figure4: Vds Drain-Source Voltage (V)

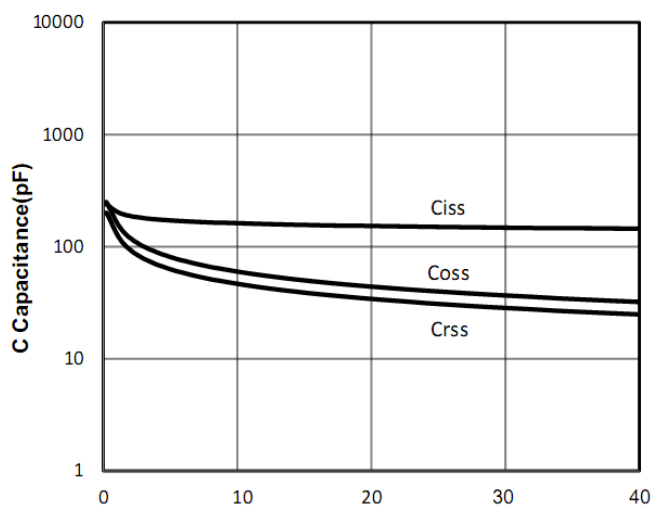


Figure5: Vds Draun-Source Voltage (V)

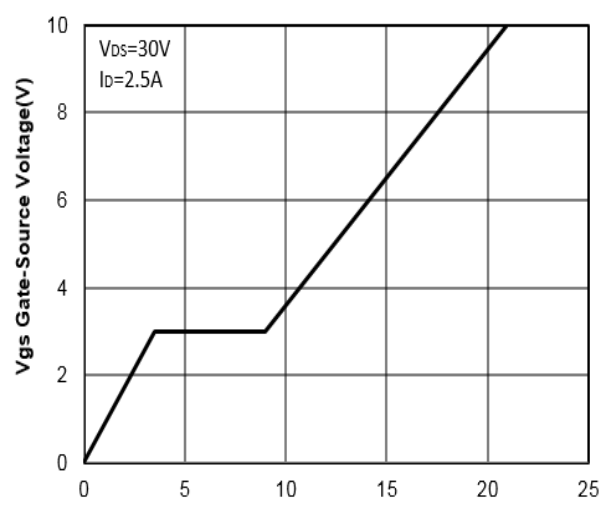


Figure6: Qg Gate Charge (nC)



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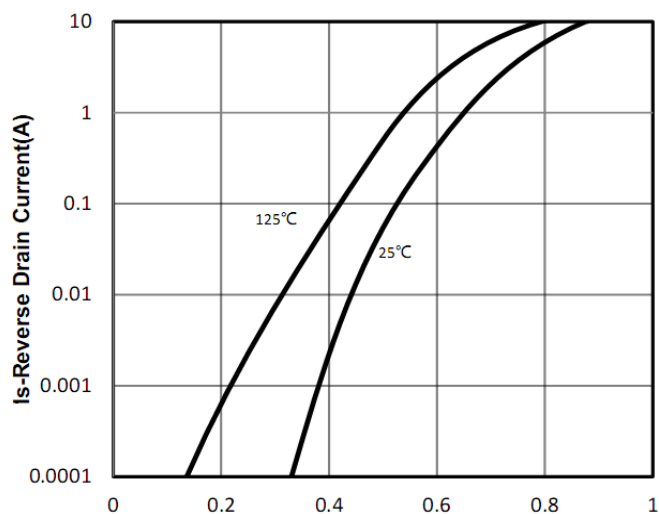


Figure7: Vsd Source-Drain Voltage (V)

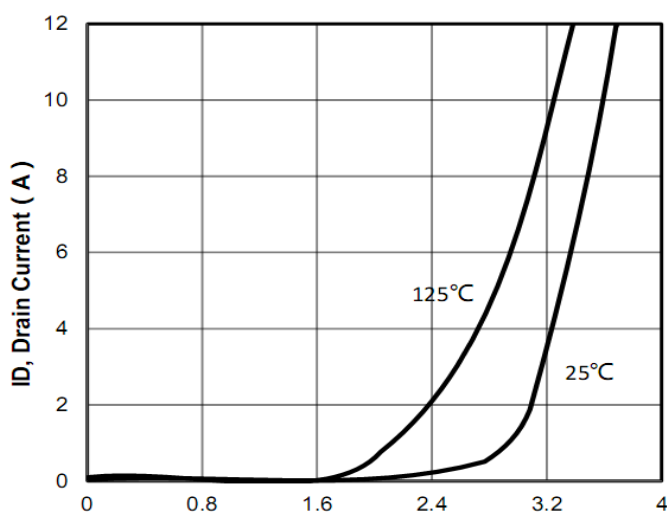


Figure8: Vgs Gate-Source Voltage (V)

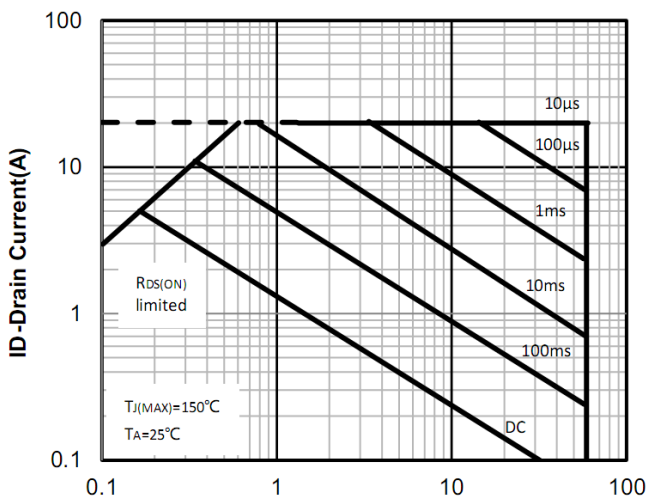


Figure9: Vds Drain -Source Voltage (V)

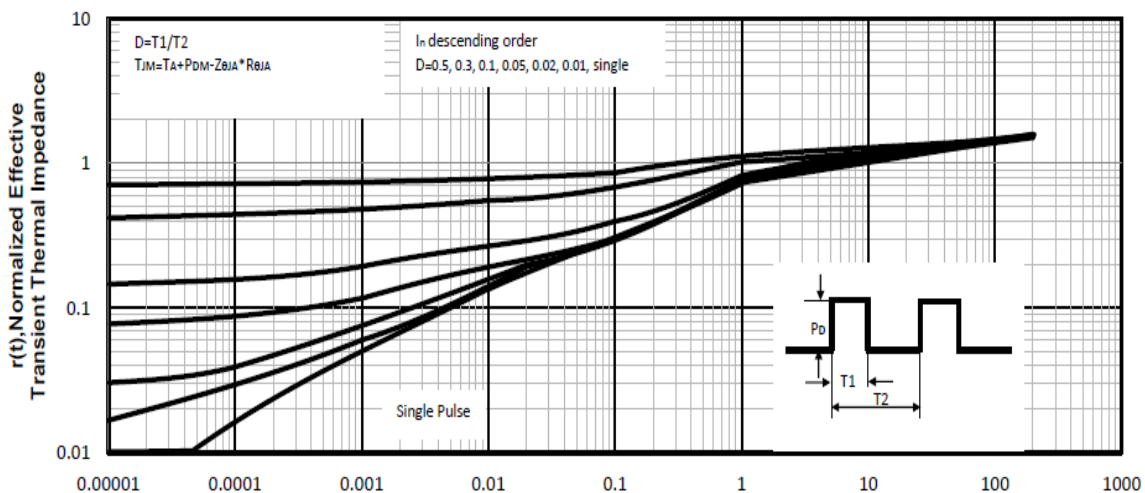
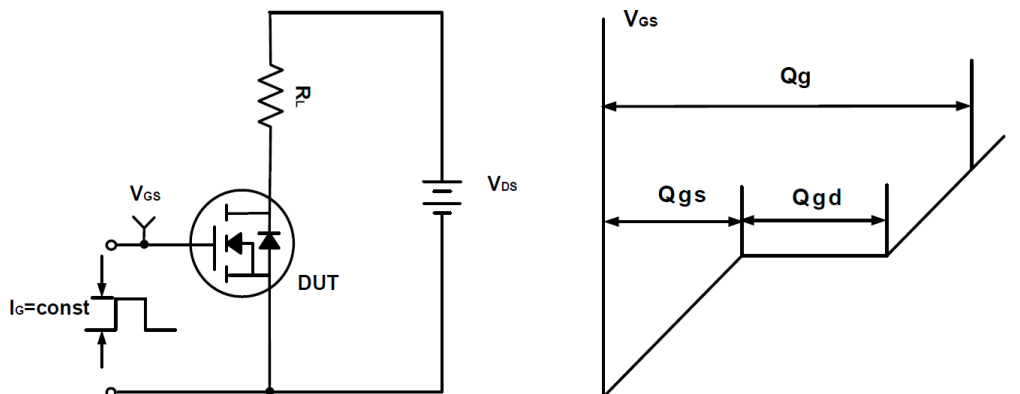
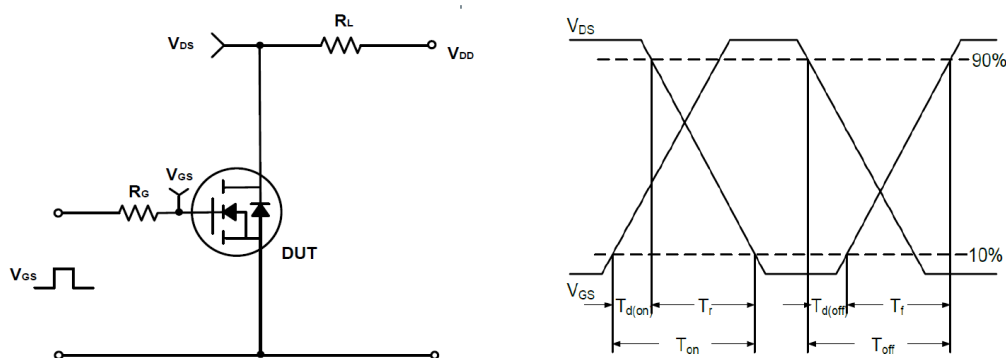
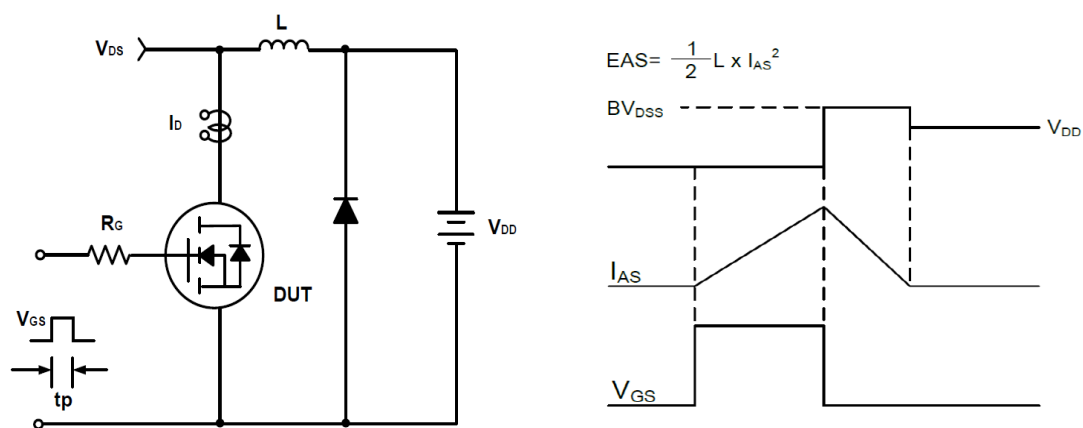
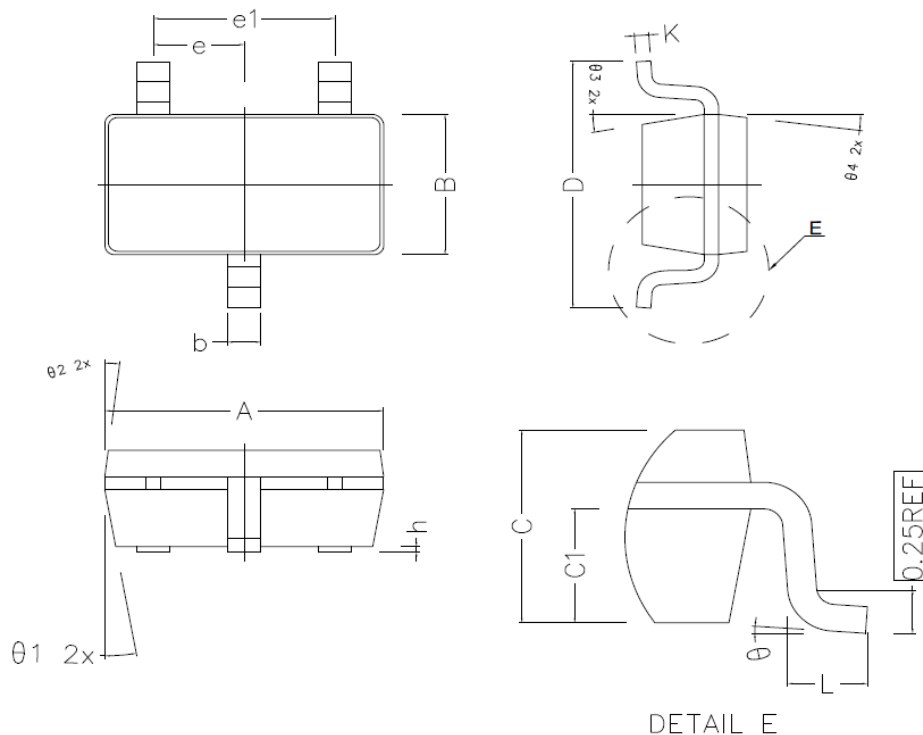


Figure10: Square Wave Pulse Duration (sec)

**Test Circuit and Waveform:**

**Figure A Gate Charge Test Circuit & Waveforms**

**Figure B Switching Test Circuit & Waveforms**

**Figure C Unclamped Inductive Switching Circuit & Waveforms**

**60V/5A N-Channel Advanced Power MOSFET**
**SOT-23-3 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 <sub>1</sub>	10° TYPE		
θ <sub>2</sub>	7° TYPE		
θ <sub>3</sub>	10° TYPE		
θ <sub>4</sub>	7° TYPE		
θ	0° ~ 8°		