

**100V/3.0A N-Channel Advanced Power MOSFET****Description**

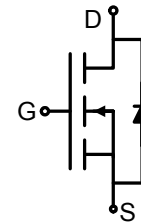
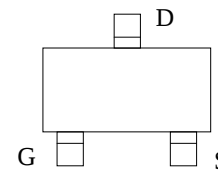
The PTL03N10A uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

- $V_{DS} = 100V, I_D = 3.0A$
 $R_{DS(ON)} < 135m\Omega @ V_{GS}=10V$
- High density cell design for ultra low R_{dson}

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

**Schematic diagram****SOT-23-3L****Order Information**

Product	Package	Packing
PTL03N10A	SOT-23-3L	3000PCS/Reel

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous $T_c=25^\circ\text{C}$	I_D	3.0	A
Drain Current-Pulsed ^(Note 1) $T_c=25^\circ\text{C}$	I_{DM}	12	A
Maximum Power Dissipation $T_A=25^\circ\text{C}$	P_D	1.2	W
Maximum Operating Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 To 150	$^\circ\text{C}$

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
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Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$	-	-	1	μA

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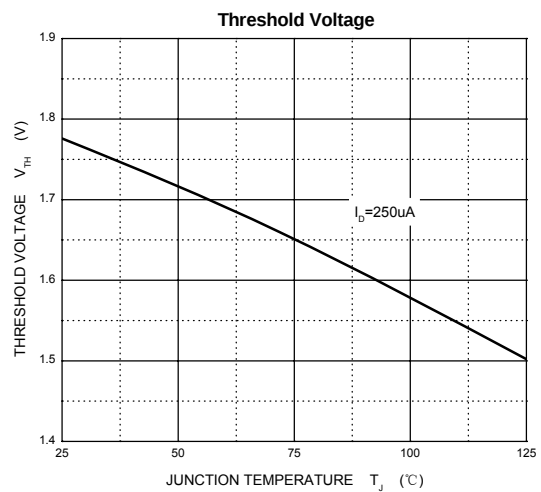
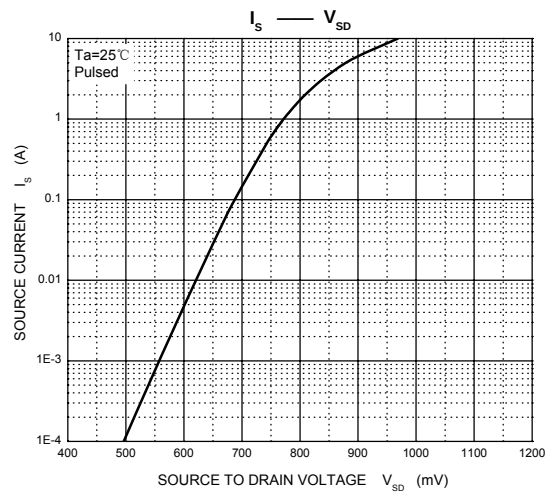
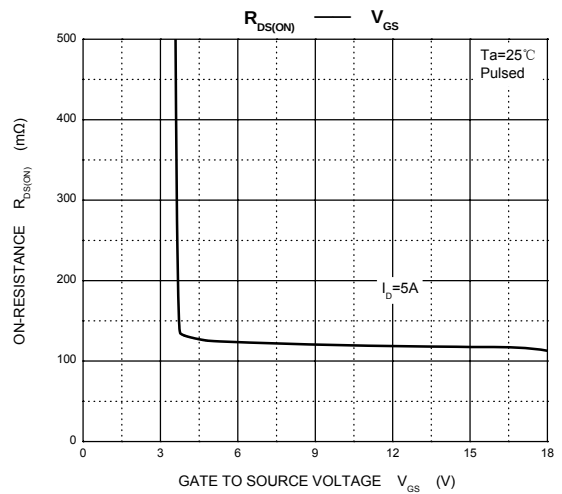
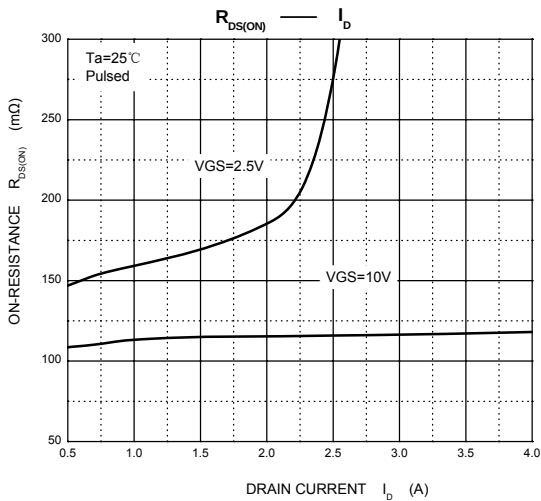
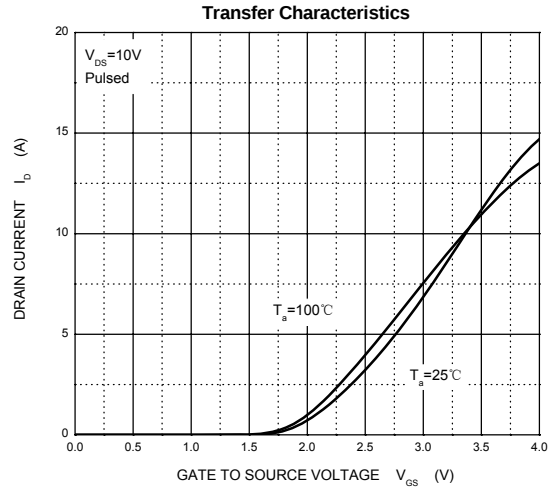
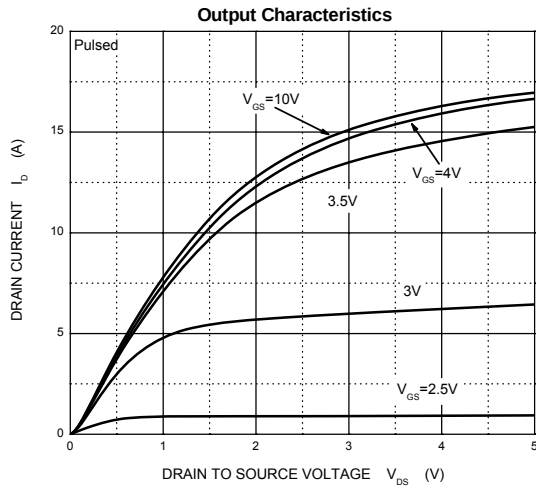
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.8	3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =2.5A	-		135	mΩ
		V _{GS} =4.5V, I _D =1.5A	-		169	
Dynamic Characteristics (Note4)						
Input Capacitance	C _{ISS}	V _{DS} =30V, V _{GS} =0V, F=1.0MHz	-	680	-	PF
Output Capacitance	C _{OSS}		-	110	-	PF
Reverse Transfer Capacitance	C _{rss}		-	80	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =2A, V _{GS} =10V, R _G =2.5Ω	-	11	-	nS
Turn-on Rise Time	t _r		-	8.4	-	nS
Turn-Off Delay Time	t _{d(off)}		-	33	-	nS
Turn-Off Fall Time	t _f		-	9.5	-	nS
Total Gate Charge	Q _g	V _{DS} =30V, I _D =3A, V _{GS} =10V	-	16		nC
Gate-Source Charge	Q _{gs}		-	3.5	-	nC
Gate-Drain Charge	Q _{gd}		-	4	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =2.5A	-	-	1.3	V

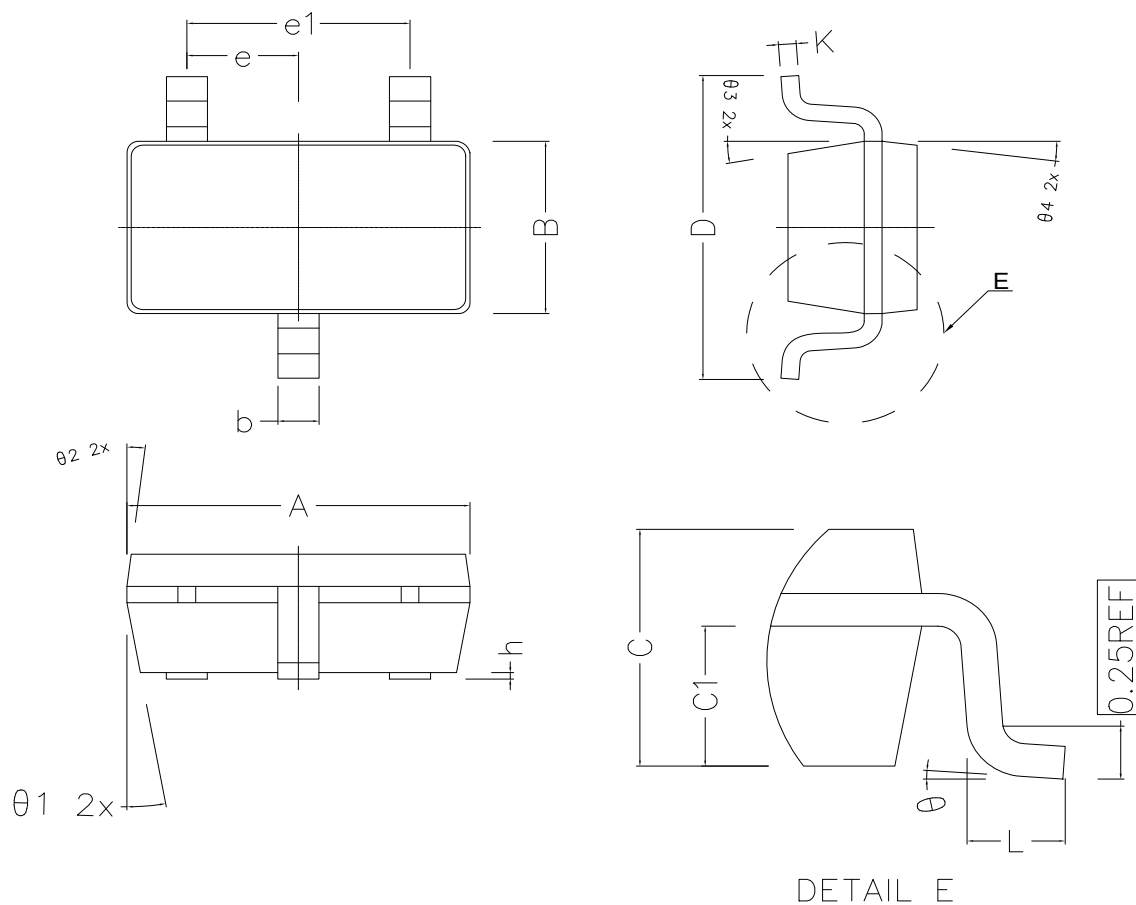
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production



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Typical Characteristics



**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°		