



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
30V	3.3m $\Omega$ @10V	40A
	5.0m $\Omega$ @4.5V	

#### Feature

- Split Gate Trench Technology
- Low  $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

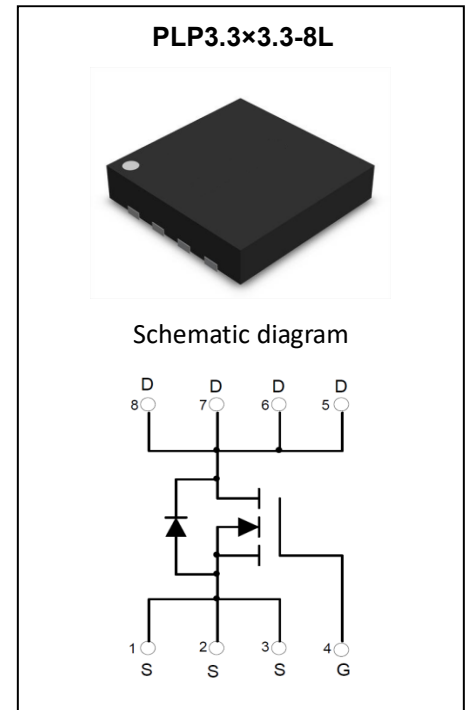
#### Application

- Power Switching Application

#### MARKING:



T033N03L = Device Code  
XX = Date Code  
Solid Dot = Green Indicator



#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain - Source Voltage	$V_{DS}$	30	V	
Gate - Source Voltage	$V_{GS}$	$\pm 20$	V	
Continuous Drain Current <sup>1</sup>	$T_C = 25^\circ\text{C}$	$I_D$	40	A
	$T_C = 100^\circ\text{C}$	$I_D$	28	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	160	A	
Single Pulsed Avalanche Current <sup>3</sup>	$I_{AS}$	18	A	
Single Pulsed Avalanche Energy <sup>3</sup>	$E_{AS}$	81	mJ	
Power Dissipation <sup>5</sup>	$T_C = 25^\circ\text{C}$	$P_D$	31	W
Thermal Resistance from Junction to Ambient <sup>6</sup>	$R_{\theta JA}$	60	$^\circ\text{C}/\text{W}$	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	4.1	$^\circ\text{C}/\text{W}$	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$	

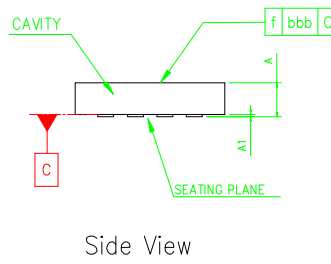
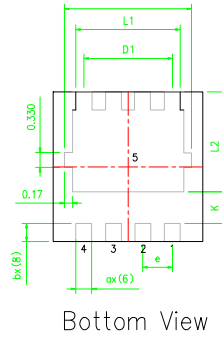
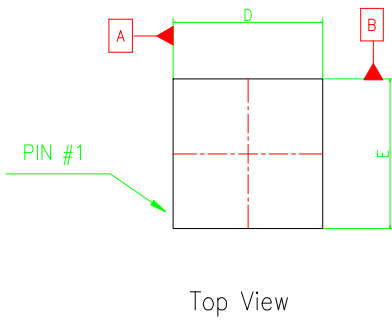
## MOSFET ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30V, V_{GS} = 0V$			1	$\mu A$
Gate - Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics<sup>4</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		3.3	4.2	m $\Omega$
		$V_{GS} = 4.5V, I_D = 20A$		5.0	6.5	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		959		pF
Output Capacitance	$C_{oss}$			607		
Reverse Transfer Capacitance	$C_{rss}$			82		
Gate Resistance	$R_g$	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		2.5		$\Omega$
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 25V, V_{GS} = 10V, I_D = 25A$		19		nC
Gate-source Charge	$Q_{gs}$			2.3		
Gate-drain Charge	$Q_{gd}$			5.0		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, R_L = 0.75\Omega, R_G = 3\Omega$		3.7		ns
Turn-on Rise Time	$t_r$			6.8		
Turn-off Delay Time	$t_{d(off)}$			18.6		
Turn-off Fall Time	$t_f$			12		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	$V_{SD}$	$V_{GS} = 0V, I_S = 20A$			1.2	V

Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width  $\leq 10\mu s$ , duty cycle  $\leq 1\%$ .
- 3.EAS condition:  $V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$  Starting  $T_J = 25^\circ\text{C}$ .
- 4.Pulse Test : Pulse Width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- 5.The power dissipation  $P_D$  is limited by  $T_{J(MAX)} = 150^\circ\text{C}$ .And device mounted on a large heatsink
- 6.Device mounted on  $1in^2$  FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .

## PLP3.3x3.3-8L Package Information



symbol	Dimension in mm		
	MIN	NOM	MAX
A	0.650	0.700	0.750
A1	0.025	0.050	0.075
D	3.200	3.300	3.400
E	3.200	3.300	3.40
D1	---	1.950	---
e	---	0.650	---
ax (6)	0.300	0.350	0.400
bx (8)	0.350	0.400	0.450
L1	2.250	2.300	2.350
L2	2.150	2.200	2.250
L3	2.750	2.800	2.850
K	0.600	0.700	0.800
bbb	0.100		
N	5		
MD/ME	4/2		