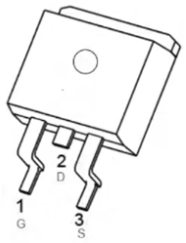
GPT090N15NTH

150V N-Channel MOSFET

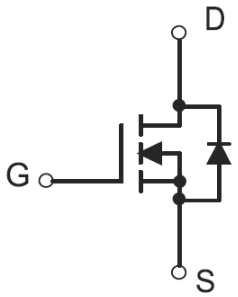
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	9mΩ@10V	90A

TO-263-2L



Schematic diagram



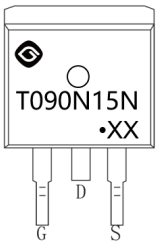
Feature

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

Application

- Power Switching Application

MARKING:



T090N15N = Device Code
XX = Date Code
Solid Dot = Green Indicater

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	150	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25℃	I_D	90	A
	T_C = 100℃	I_D	59	A
Pulsed Drain Current[2]		I_{DM}	360	A
Single Pulsed Avalanche Current[3]		I_{AS}	36	A
Single Pulsed Avalanche Energy[3]		E_{AS}	324	mJ
Power Dissipation[5]	T_C = 25℃	P_D	208	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	30	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.6	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 150V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	3	4	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		9	12	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 75V, V_{GS} = 0V, f = 0.1MHz		3280		pF
Output Capacitance	C_{oss}			270		
Reverse Transfer Capacitance	C_{rss}			18		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 0.1MHz		3		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 75V, V_{GS} = 10V, I_D = 20A		46		nC
Gate-source Charge	Q_{gs}			13		
Gate-drain Charge	Q_{gd}			10		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 75V, V_{GS} = 10V, I_D = 45A, R_G = 2.2Ω		17		ns
Turn-on Rise Time	t_r			80		
Turn-off Delay Time	$t_{d(off)}$			36		
Turn-off Fall Time	t_f			10		
Source - Drain Diode Characteristics						
Diode Forward Voltage[4]	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 ≤ 10μs, duty cycle ≤ 1%.

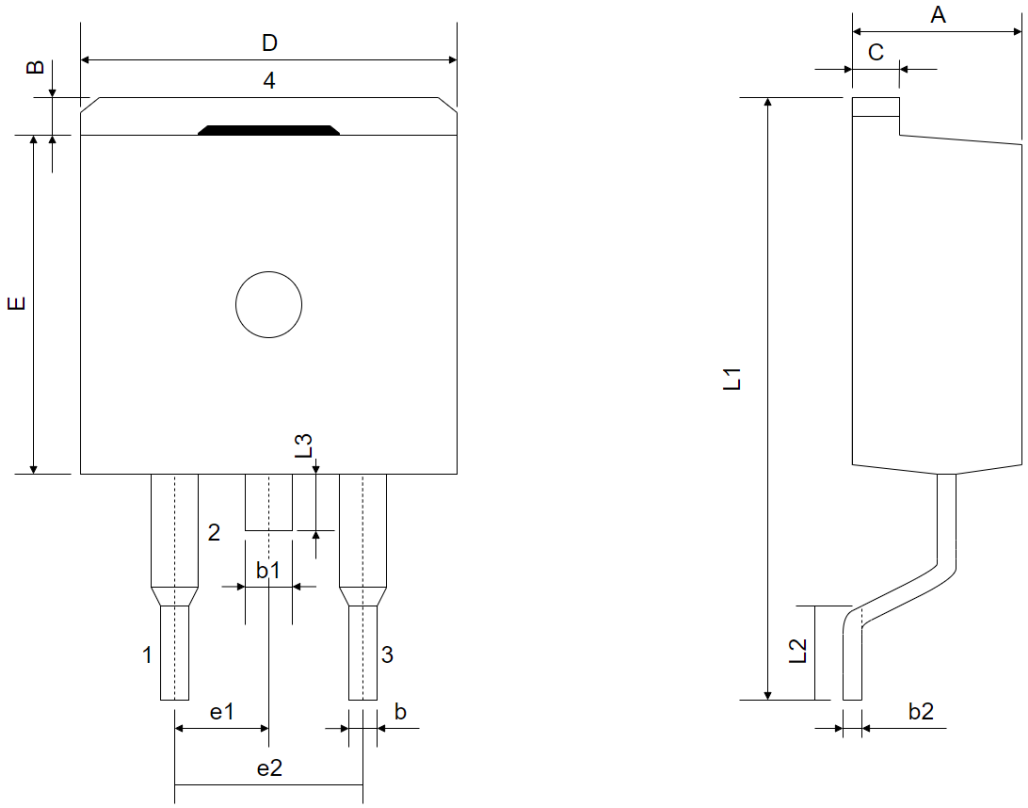
3.E_{AS} condition: V_{DD} = 50V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

4.Pulse Test : Pulse Width ≤ 1500μs, duty cycle ≤ 2%.

5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°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°C.

TO-263-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
B	1.000	1.400	0.039	0.055
b	0.700	0.900	0.028	0.035
b1	1.150	1.350	0.045	0.053
b2	0.400	0.600	0.016	0.024
C	1.200	1.400	0.047	0.055
D	9.800	10.200	0.386	0.402
E	9.000	9.400	0.354	0.370
e1	2.340	2.740	0.092	0.108
e2	4.880	5.280	0.192	0.208
L1	15.000	16.000	0.591	0.630
L2	2.240	2.840	0.088	0.112
L3	1.200	1.600	0.047	0.063