



Product Summary

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

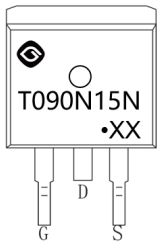
Feature

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

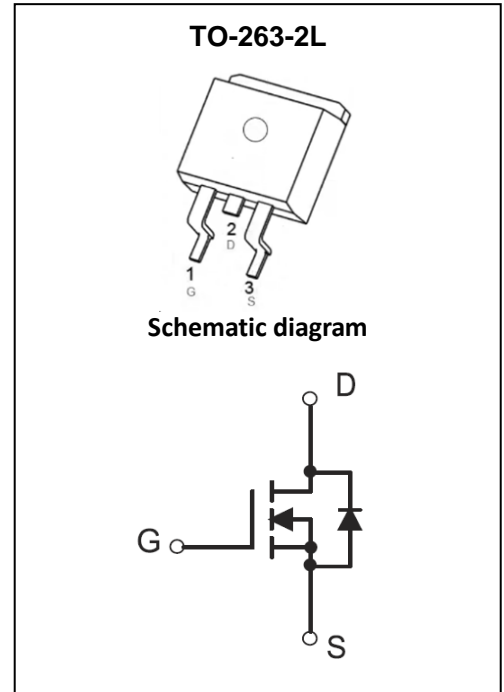
Application

- Power Switching Application

MARKING:



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



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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	$T_C = 25^\circ\text{C}$	I_D	90 A
	$T_C = 100^\circ\text{C}$	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	$T_C = 25^\circ\text{C}$	P_D	208 W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	30	$^\circ\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.6	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

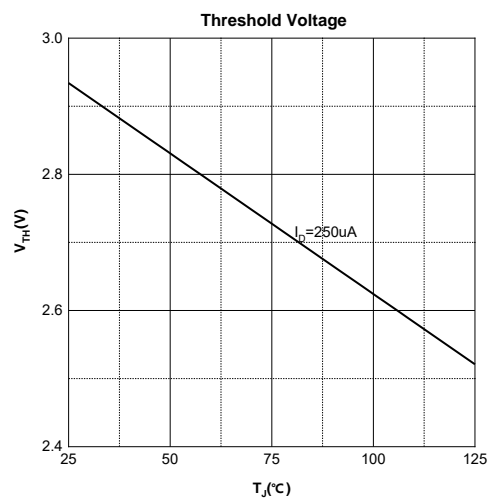
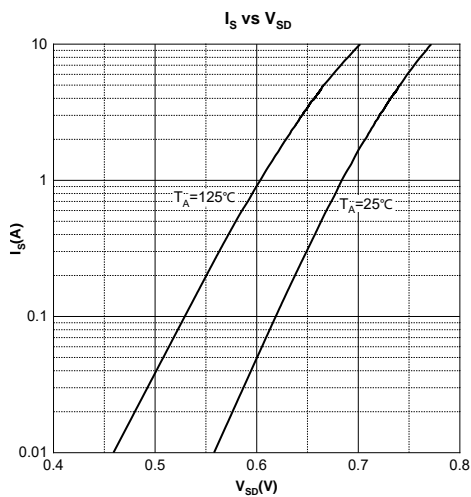
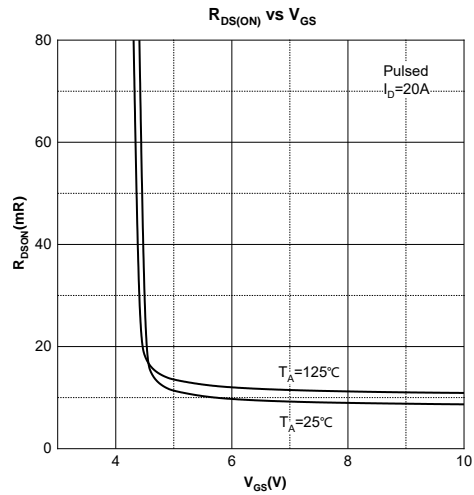
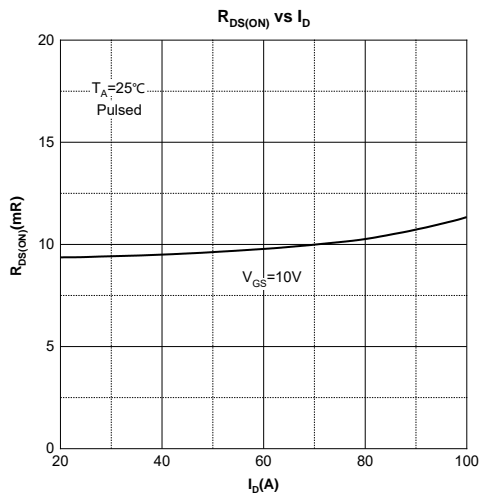
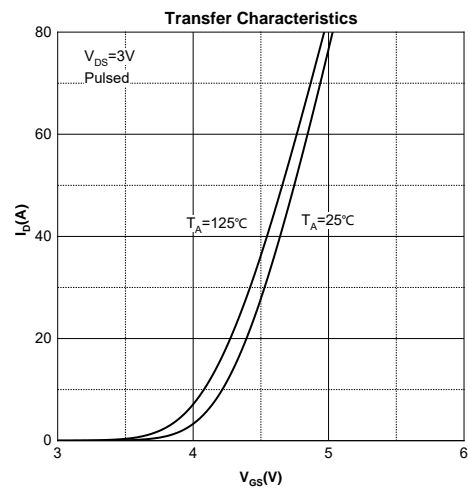
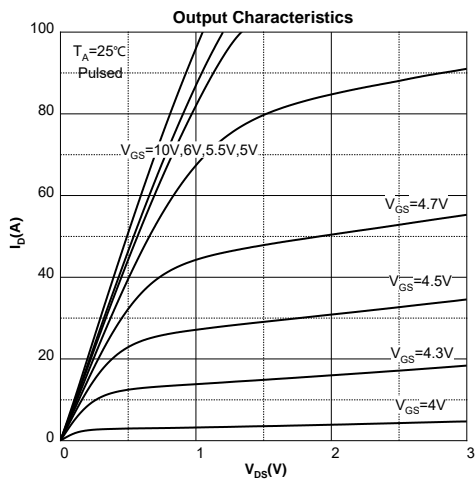
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

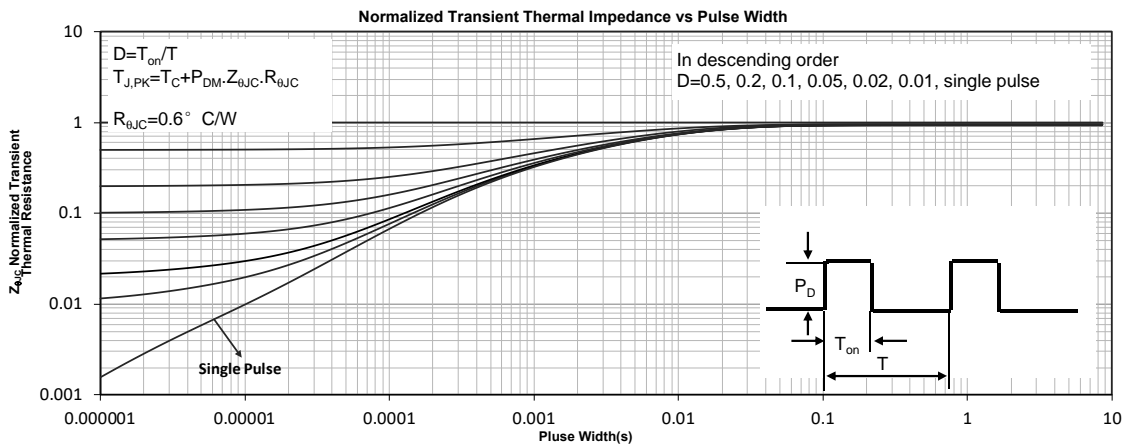
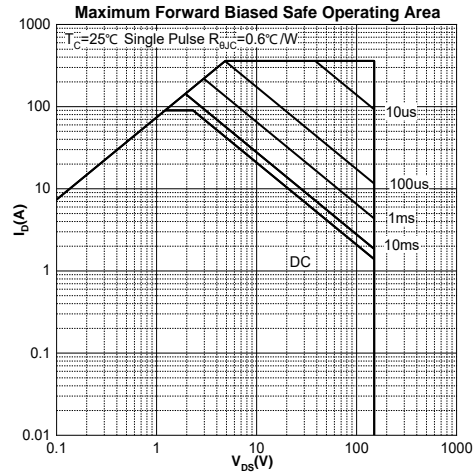
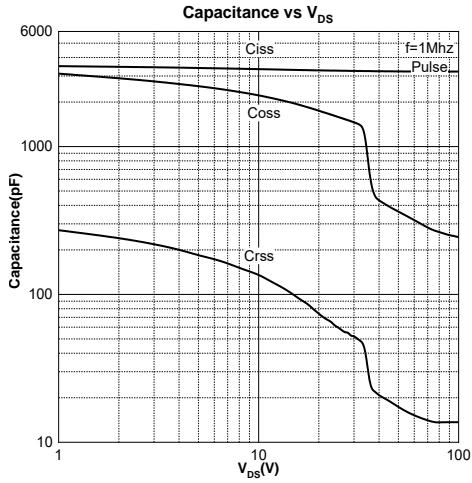
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	150			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 150V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics⁴						
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		3256		pF
Output Capacitance	C _{oss}			280		
Reverse Transfer Capacitance	C _{rss}			19		
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		54		nC
Gate-source Charge	Q _{gs}			21		
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 :

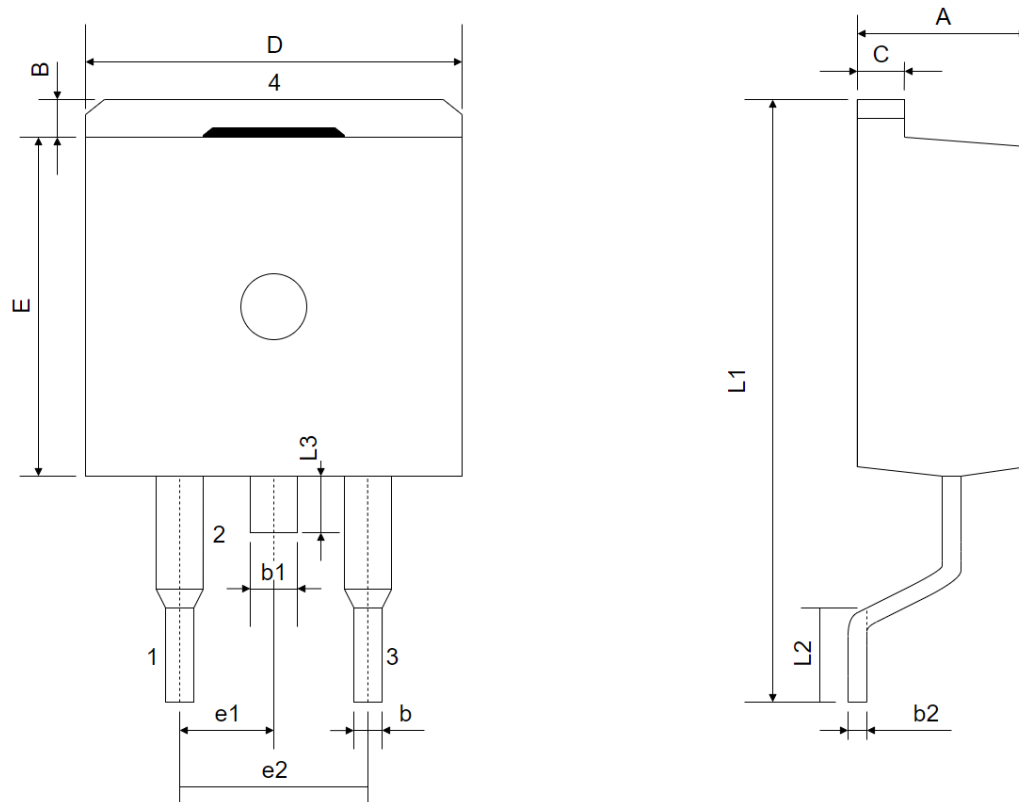
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.
- 4.Pulse Test : Pulse Width ≤ 1500μs, duty cycle ≤ 2%.
- 5.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics





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