

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	12mΩ@-10V	-100A

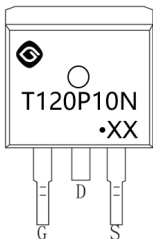
Feature

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

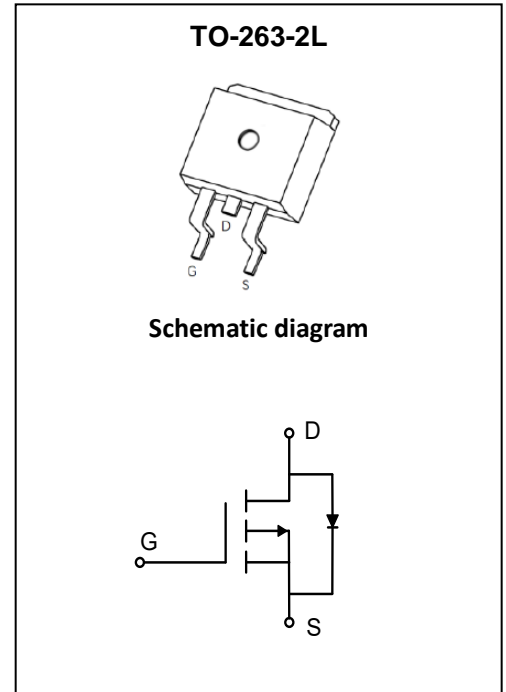
Application

- Power Switching Application
- DC/DC Converter
- LED Backlighting

MARKING:



T120P10N = 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}	-100	V	
Gate - Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	-100	A
	$T_C = 100^\circ\text{C}$	I_D	-65	A
Pulsed Drain Current ²	I_{DM}	-400	A	
Single Pulsed Avalanche Current ³	I_{AS}	-59	A	
Single Pulsed Avalanche Energy ³	E_{AS}	870	mJ	
Power Dissipation ⁵	$T_C = 25^\circ\text{C}$	P_D	192	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	56	$^\circ\text{C}/\text{W}$	
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.65	$^\circ\text{C}/\text{W}$	
Junction Temperature	T_J	150	$^\circ\text{C}$	
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$	

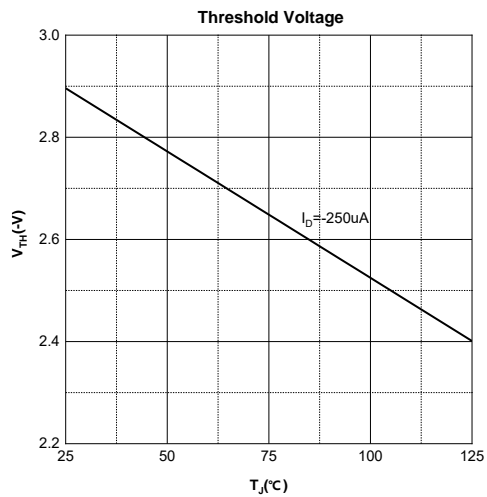
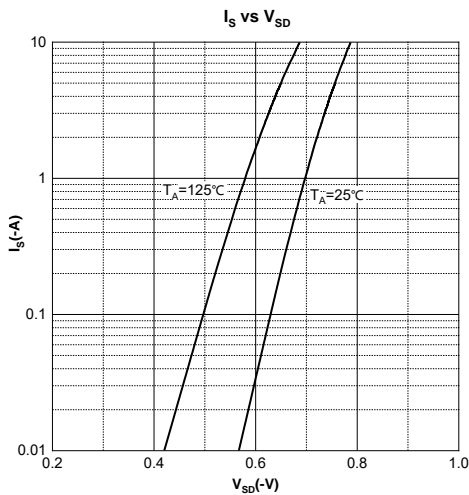
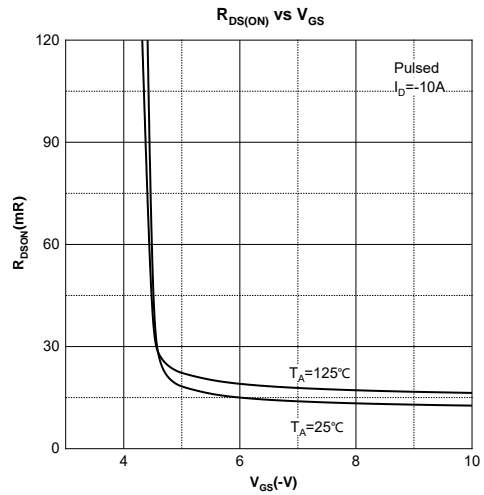
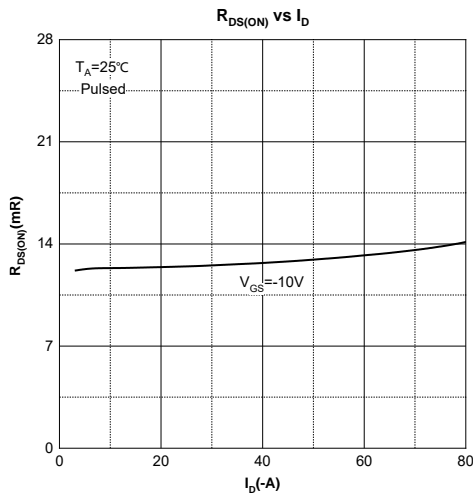
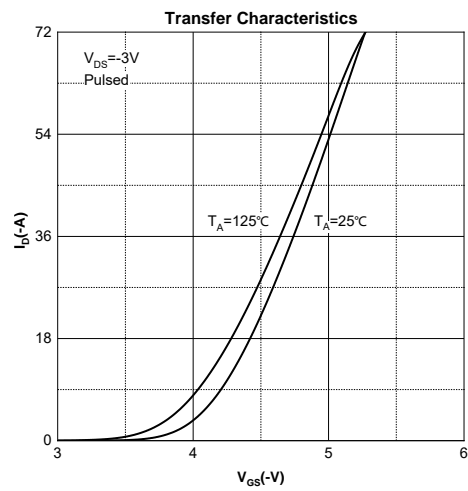
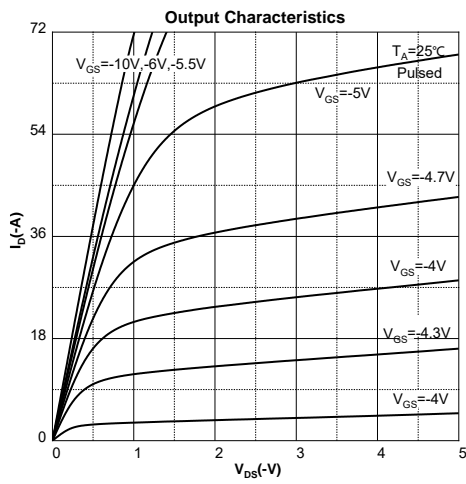
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

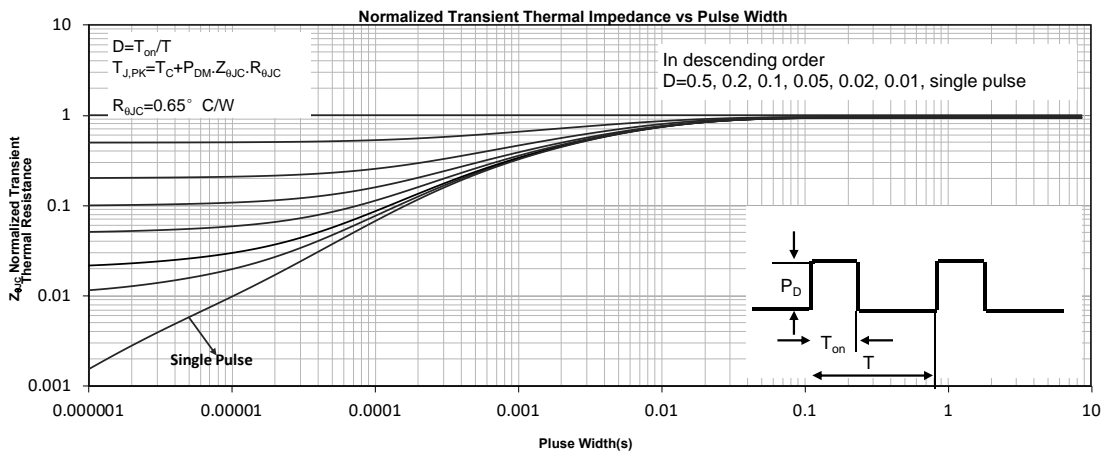
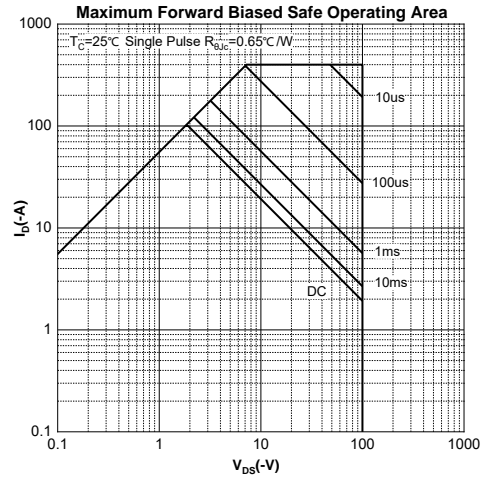
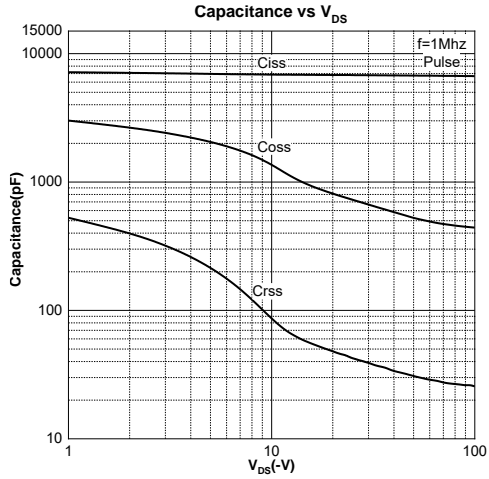
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -100V, V_{GS} = 0V$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-2	-3	-4	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -20A$		12	16	$m\Omega$
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -50V, V_{GS} = 0V, f = 1MHz$		6781		pF
Output Capacitance	C_{oss}			522		
Reverse Transfer Capacitance	C_{rss}			30		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		8.1		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = -50V, V_{GS} = -10V, I_D = -20A$		94		nC
Gate-source Charge	Q_{gs}			28		
Gate-drain Charge	Q_{gd}			16		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -50V, V_{GS} = -10V, R_G = 3\Omega, I_D = -20A$		17		ns
Turn-on Rise Time	t_r			25		
Turn-off Delay Time	$t_{d(off)}$			50		
Turn-off Fall Time	t_f			19		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = -20A$			-1.2	V

Notes :

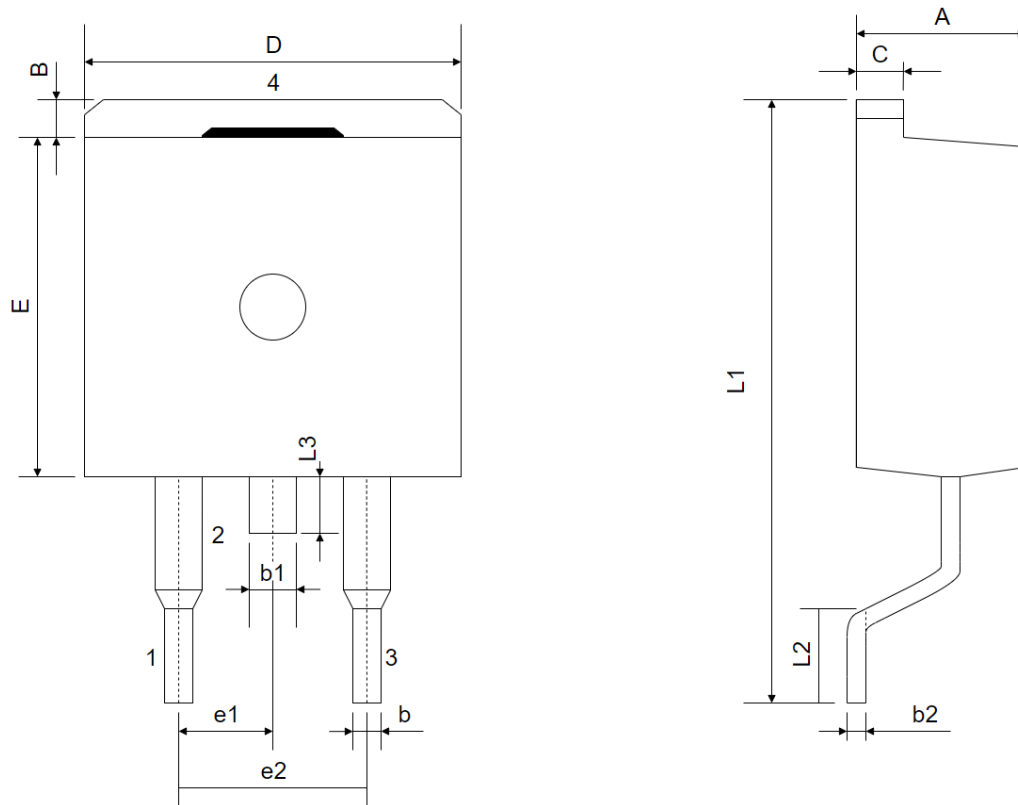
1. The maximum current rating is limited by package. And device mounted on a large heatsink
2. Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. EAS condition: $V_{DD} = -50V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
4. Pulse Test : Pulse Width $\leq 300\mu s$, 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 $T_A = 25^\circ\text{C}$.

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