



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.0mΩ@10V	120A

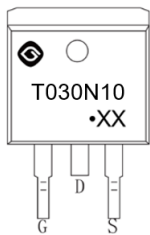
Feature

- High Power and current handing capability
- Load switch
- High density cell design for ultra low $R_{DS(ON)}$
- Lead free product is acquired

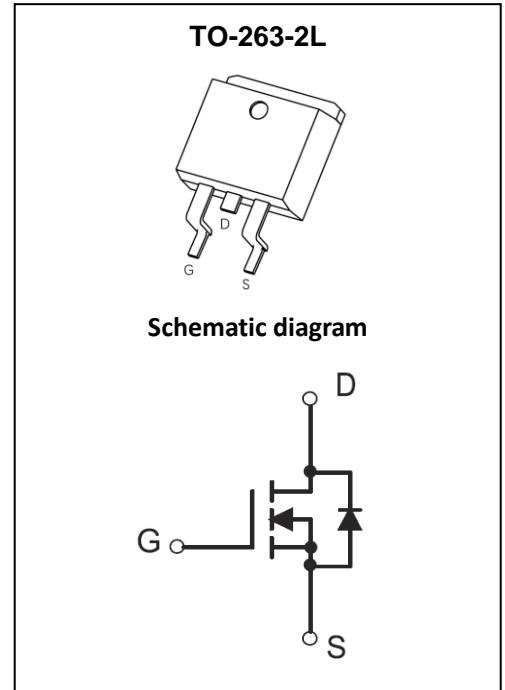
Application

- SMPS and general purpose applications
- Hard switched and high frequency circuits

MARKING:



T030N10= Device code
XX= Date Code



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ^{1,2}	I_D	120	A
Pulsed Drain Current	I_{DM}	480	A
Avalanche Current*	I_{AS}	28	A
Single Pulse Avalanche Energy*	E_{AS}	392	mJ
Maximum Power Dissipation	P_D	227	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.55	°C/W
Thermal Resistance from Junction to Ambient ^{1,2}	$R_{\theta JA}$	62	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

* E_{AS} test condition: $V_{DD}=50V$, $V_{GS}=10V$, $L=1.0\text{mH}$, starting $T_J=25^\circ\text{C}$.

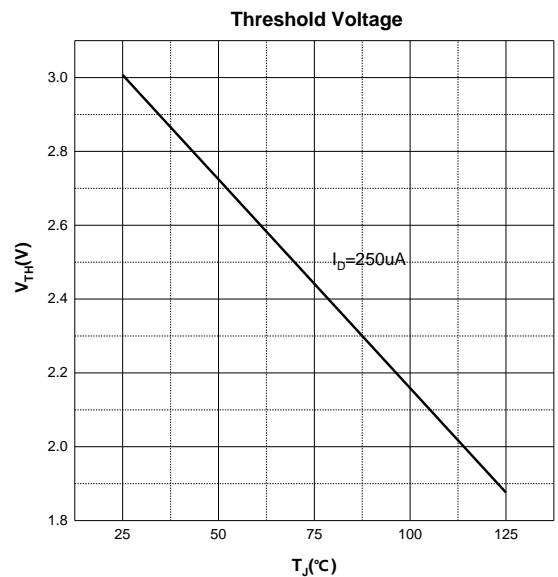
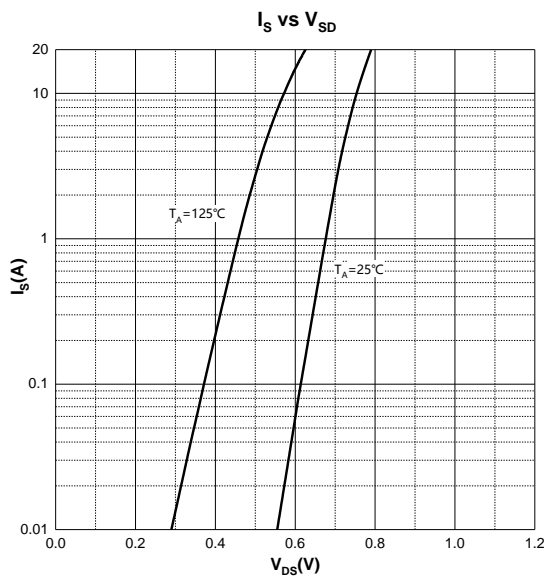
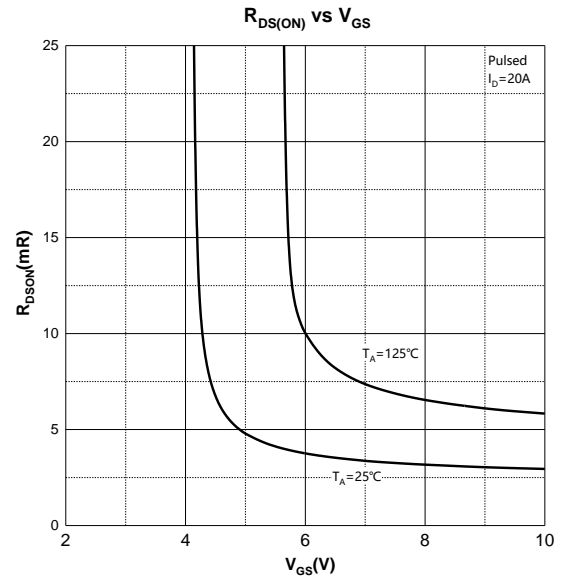
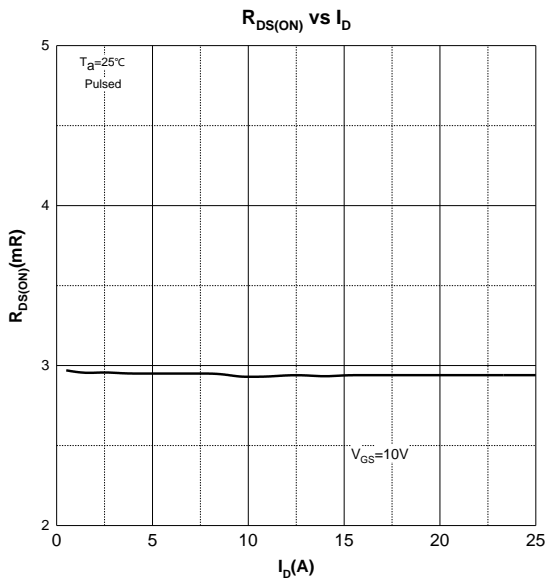
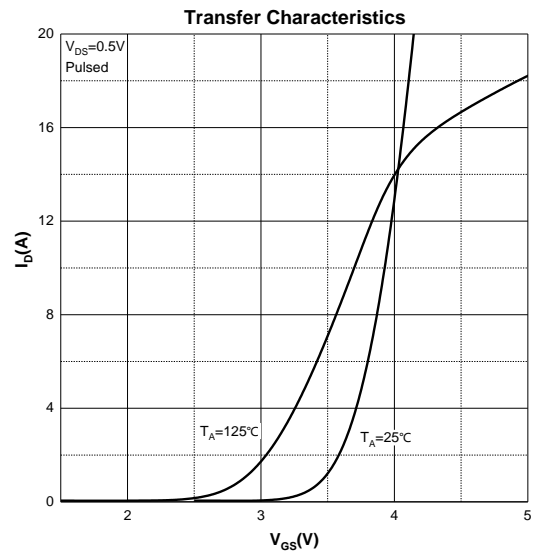
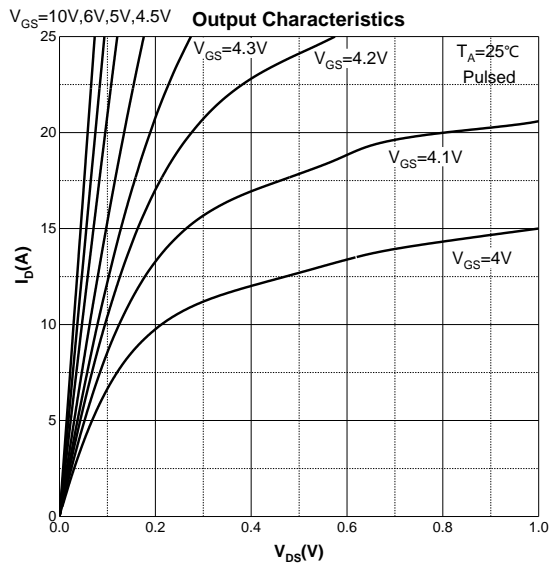
MOSFET ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise noted)

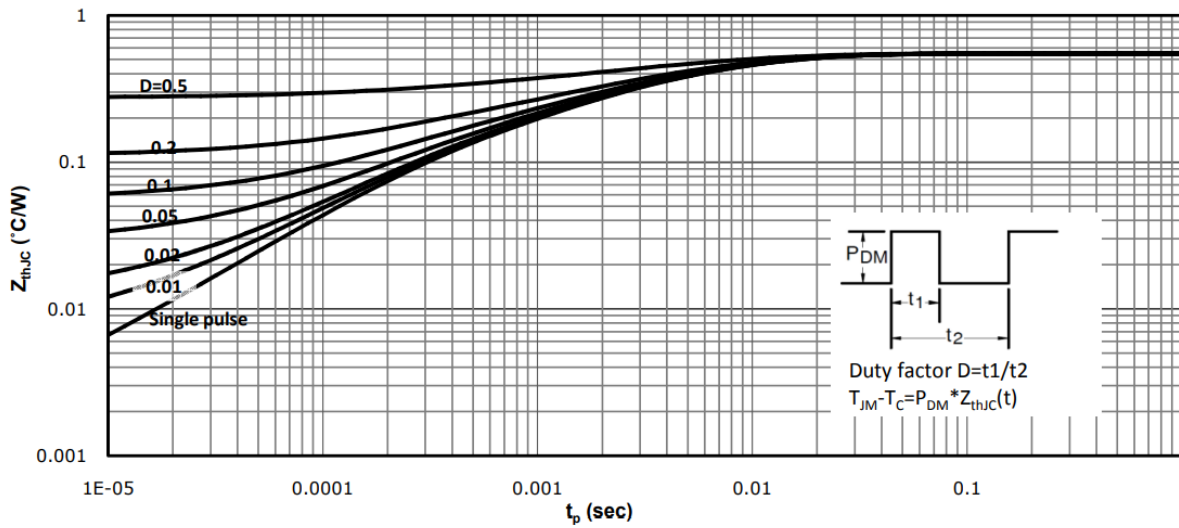
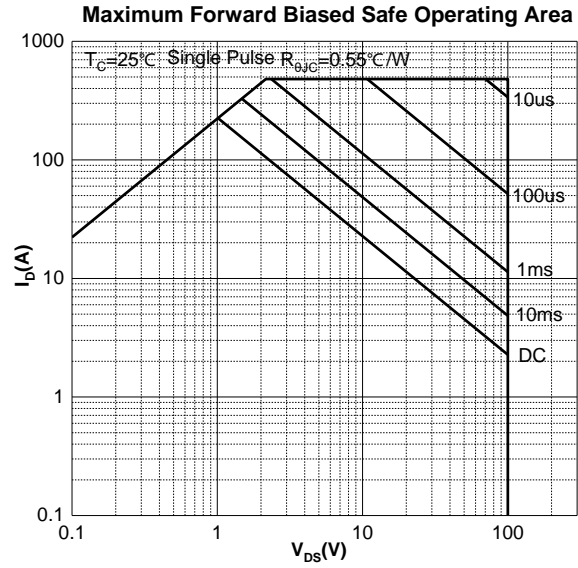
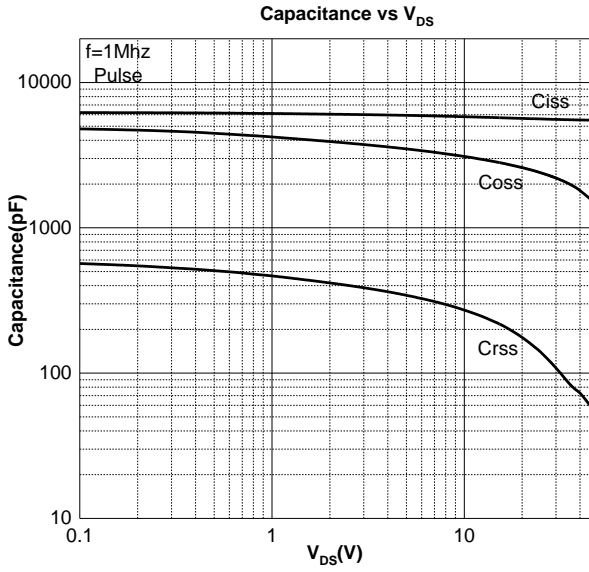
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Gate threshold voltage ³	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0	3.0	4.0	V
Drain-source on-resistance ³	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		3.0	3.9	m Ω
Dynamic characteristics						
Input capacitance	C_{iss}	$V_{DS} = 45V, V_{GS} = 0V, f = 1MHz$		5551		pF
Output capacitance	C_{oss}			1591		
Reverse transfer capacitance	C_{rss}			60		
Switching Characteristics						
Total gate charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A$		115		nC
Gate-source charge	Q_{gs}			38		
Gate-drain charge	Q_{gd}			30		
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 50V$ $R_g = 3.3\Omega, I_D = 20A$		45		ns
Turn-on rise time	t_r			59		
Turn-off delay time	$t_{d(off)}$			70		
Turn-off fall time	t_f			31		
Diode Characteristics						
Diode forward current	I_S				120	A
Diode pulsed forward current ^a	I_{SM}				480	A
Diode forward voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 20A$			1.2	V

Notes:

- $R_{\theta JA}$ is measured with the device mounted on 1 in² FR4 board with 1oz. single side copper, in a still air environment with $T_A = 25^\circ\text{C}$.
- $R_{\theta JA}$ is measured in the steady state
- Pulse test : Pulse width $\leq 380\mu s$, duty cycle $\leq 2\%$.

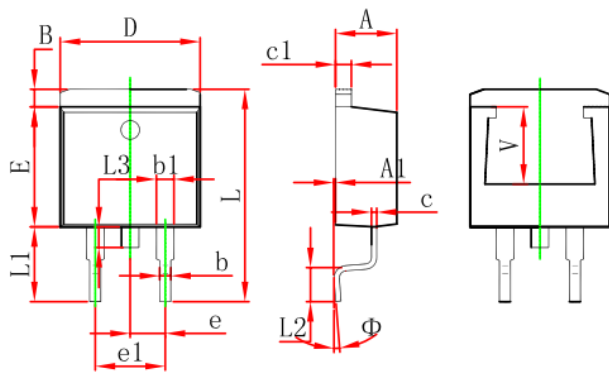
Typical Electrical and Thermal Characteristics





Normalized Maximum Transient Thermal Impedance

TO-263-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	