

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	2m Ω @10V	250A

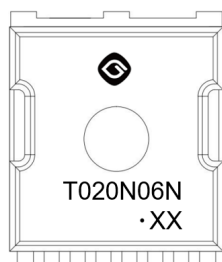
Feature

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

Application

- Power Switching Application

MARKING:

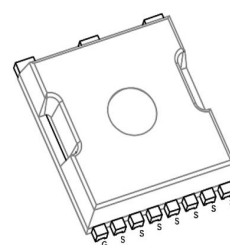


T020N06N = Device Code

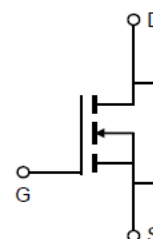
XX = Date Code

Solid Dot = Green Indicator

TOLL



Schematic diagram



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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	60	V
Gate - Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ¹	$T_C = 25^\circ\text{C}$	I_D	250	A
	$T_C = 100^\circ\text{C}$	I_D	163	A
Pulsed Drain Current ²		I_{DM}	1000	A
Single Pulsed Avalanche Current ³		I_{AS}	59	A
Single Pulsed Avalanche Energy ³		E_{AS}	870	mJ
Power Dissipation ⁵		P_D	245	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	30	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.51	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

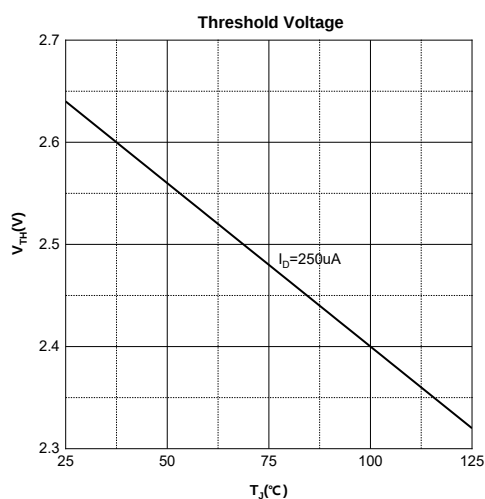
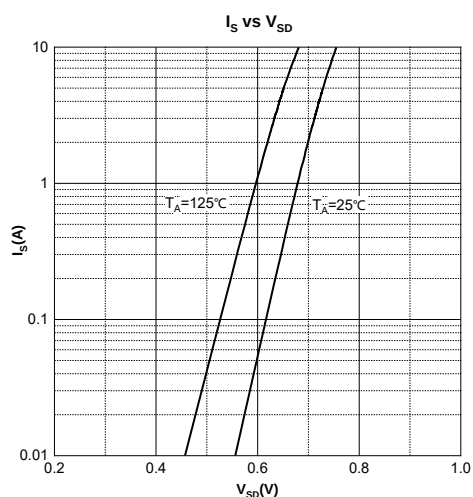
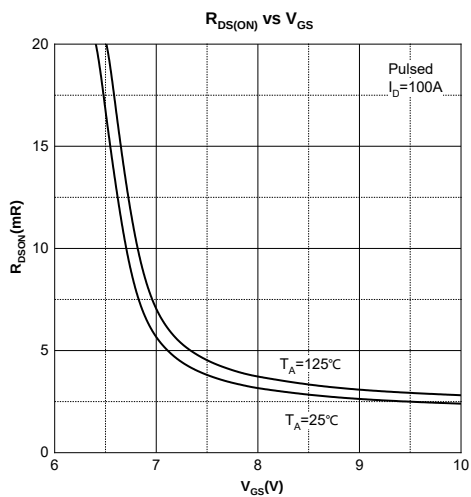
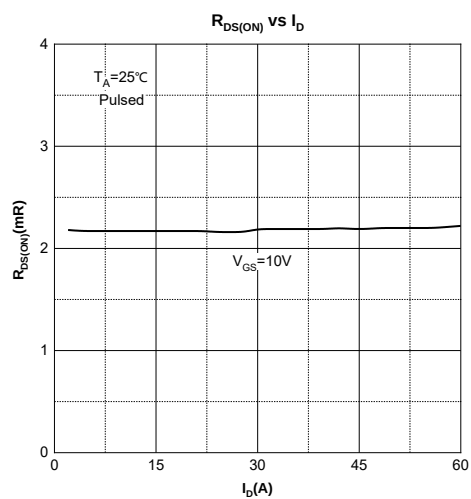
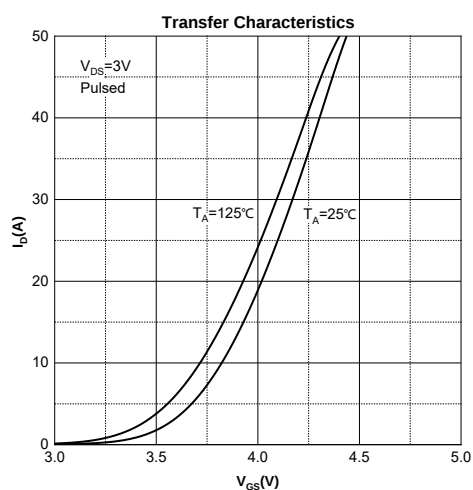
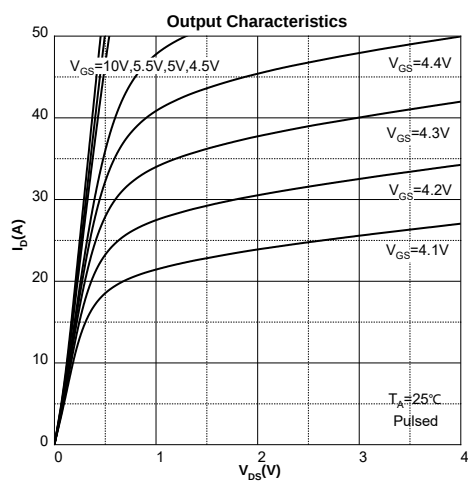
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

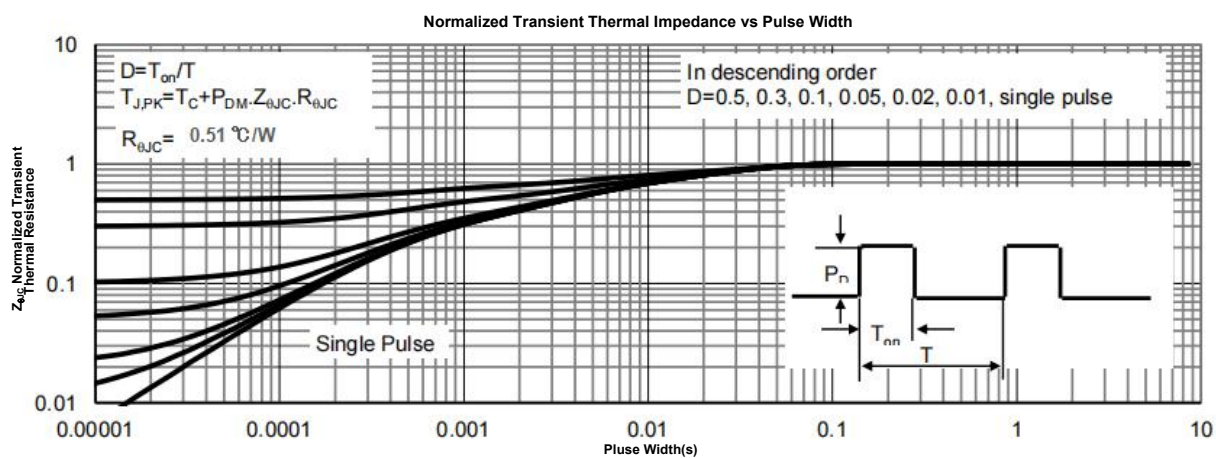
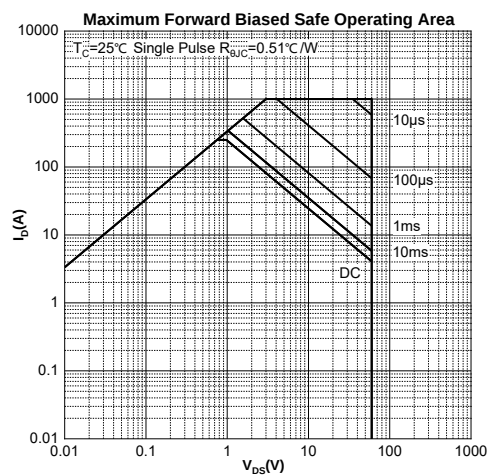
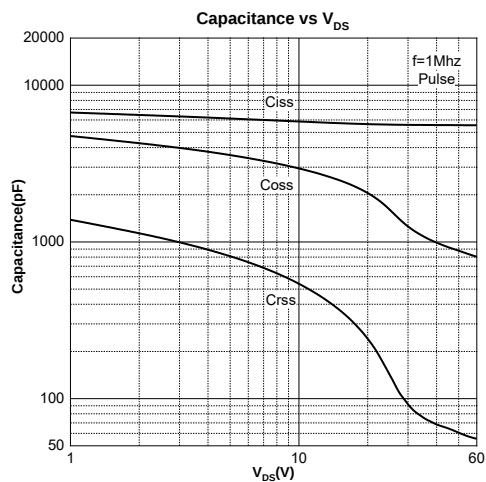
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	2.6	4	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		2	2.7	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 0.1MHz		5688		pF
Output Capacitance	C _{oss}			1241		
Reverse Transfer Capacitance	C _{rss}			90		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 0.1MHz		2.4		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 20A		98		nC
Gate-source Charge	Q _{gs}			21		
Gate-drain Charge	Q _{gd}			24		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 110A, R _G = 2.2Ω		23		ns
Turn-on Rise Time	t _r			10		
Turn-off Delay Time	t _{d(off)}			61		
Turn-off Fall Time	t _f			23		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 10A			1.2	V

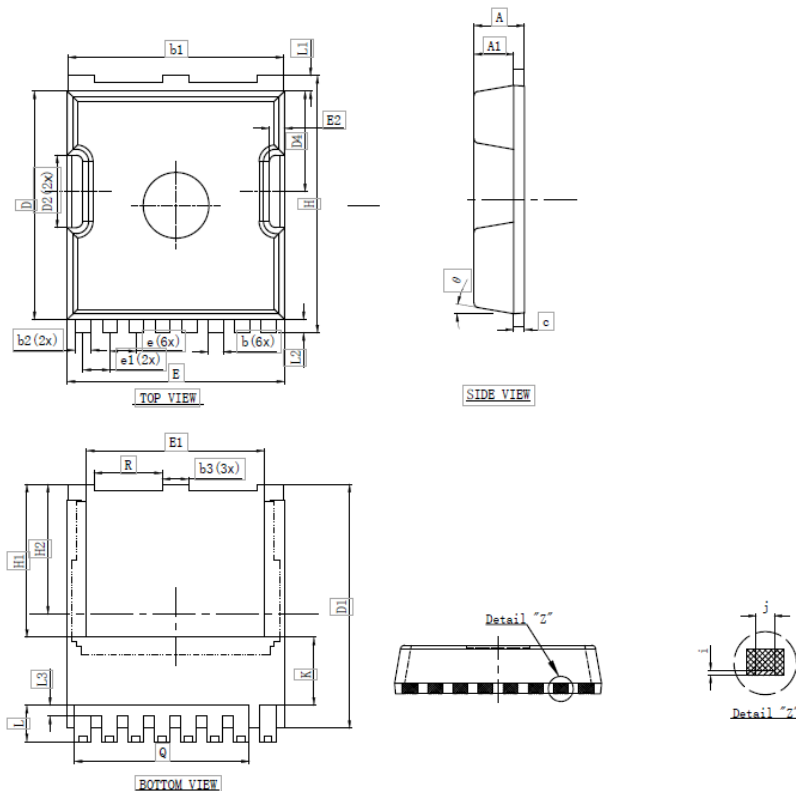
Notes :

- 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 ≤ 300μs, 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





TOLL Package Information


SYMBOL	MILLIMETER		Dimensions In Inches	
	MIN.	MAX.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	1.700	1.900	0.067	0.075
b	0.600	0.800	0.024	0.031
b1	9.700	9.900	0.382	0.390
b2	0.650	0.850	0.026	0.033
b3	1.100	1.300	0.043	0.051
c	0.400	0.600	0.016	0.024
D	10.300	10.500	0.406	0.413
D1	11.000	11.200	0.433	0.441
D2	3.200	3.400	0.126	0.134
D4	4.470	4.670	0.176	0.184
E	9.800	10.000	0.386	0.394
E1	8.000	8.200	0.315	0.323
E2	0.500	0.700	0.020	0.028
e	1.200 BSC		0.047BSC	
e1	1.225 BSC		0.048BSC	
H	11.600	11.800	0.457	0.465
H1	6.950 BSC		0.247BSC	
H2	5.900 BSC		0.232BSC	
i	0.100 REF		0.004REF	
j	0.350 REF		0.014REF	
K	3.100 REF		0.122REF	
L	1.550	1.750	0.061	0.069
L1	0.600	0.800	0.024	0.031
L2	0.500	0.700	0.020	0.028
L3	0.400	0.600	0.016	0.024
Q	7.950 REF		0.313REF	
R	3.000	3.200	0.118	0.126
θ	10°			