HIGH DIODE

T014N10NTH

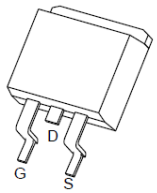
RoHS COMPLIANT

100V N-Channel MOSFET

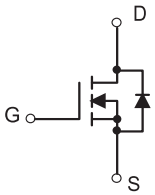
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	2.2mΩ@10V	240A

TO-263-2L



Schematic diagram



Feature

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

Application

- DC/DC Converter
- General Purpose Applications
- Motor Control
- Battery Management

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
T014N10NTH	TO-263-2L	T014N10N	Reel & Tape	330mm	24mm	800pcs

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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°C	I_D	240	A
	T_C = 100°C	I_D	152	A
Pulsed Drain Current[2]		I_{DM}	960	A
Single Pulsed Avalanche Current[3]		I_{AS}	75	A
Single Pulsed Avalanche Energy[3]		E_{AS}	1406	mJ
Power Dissipation[5]	T_C = 25℃	P_D	300	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	42.5	°C/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.42	°C/W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	°C

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	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} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	2.9	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 40A		2.2	2.6	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, f = 1MHz		10506		pF
Output Capacitance	C_{oss}			1544		
Reverse Transfer Capacitance	C_{rss}			75		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.7		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D = 40A		170		nC
Gate-Source Charge	Q_{gs}			45		
Gate-Drain Charge	Q_{gd}			46		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 50V, V_{GS} = 10V, I_D= 50A, R_G = 3Ω		78		ns
Turn-On Rise Time	t_r			126		
Turn-Off Delay Time	$t_{d(off)}$			85		
Turn-Off Fall Time	t_f			91		
Source-Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 40A			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%.

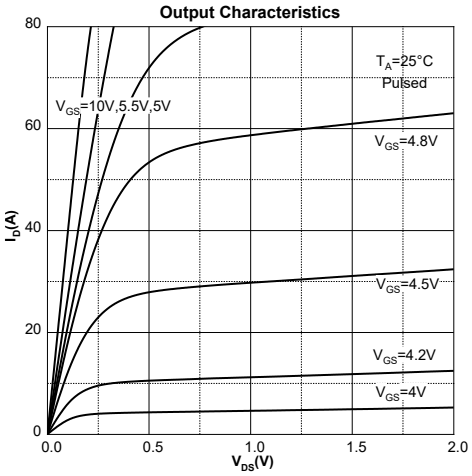
3.E_{AS} condition: V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω, Starting T_J = 25°C.

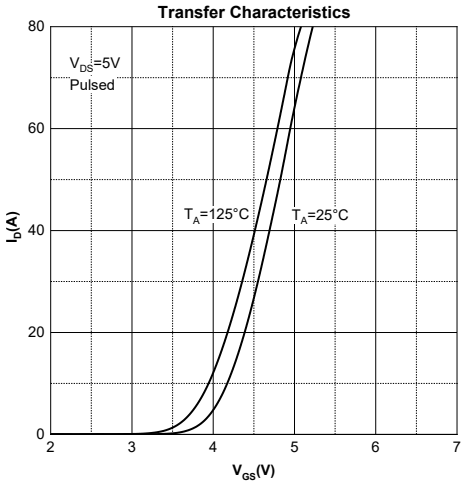
4.Pulse Test: Pulse Width ≤ 300μs, duty cycle ≤ 2%.

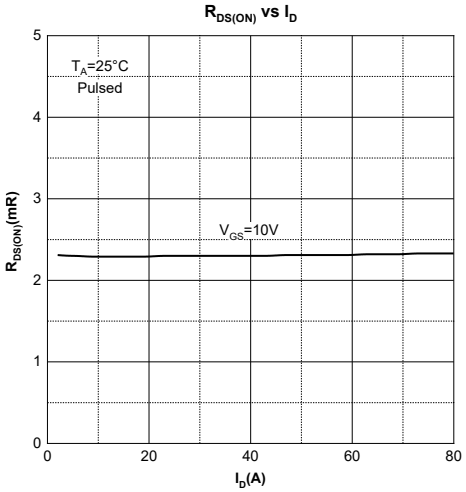
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C. And device mounted on a large heatsink.

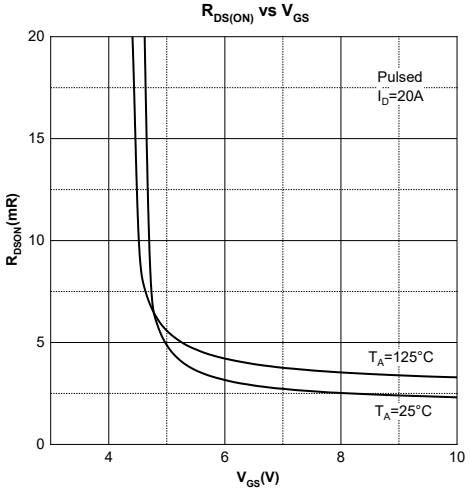
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

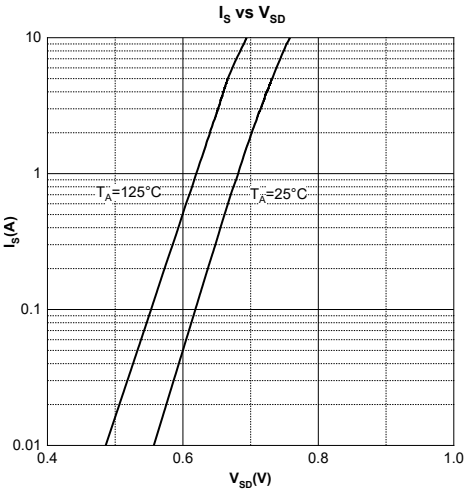
Typical Characteristics

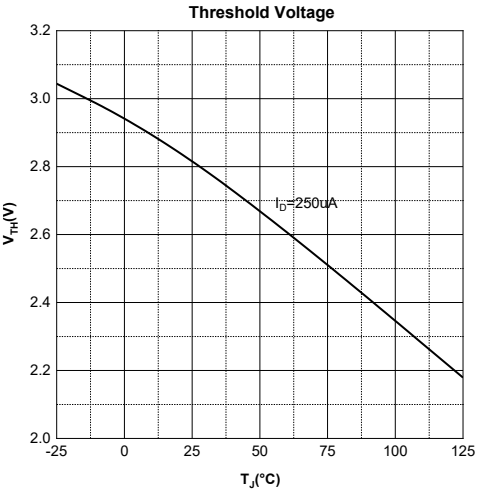












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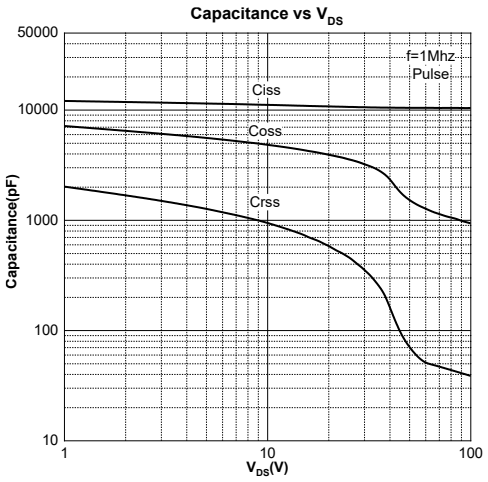
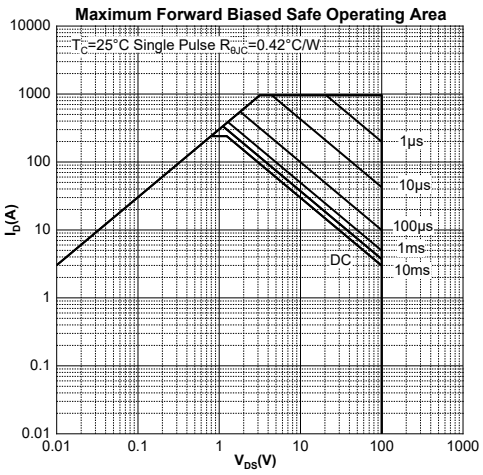
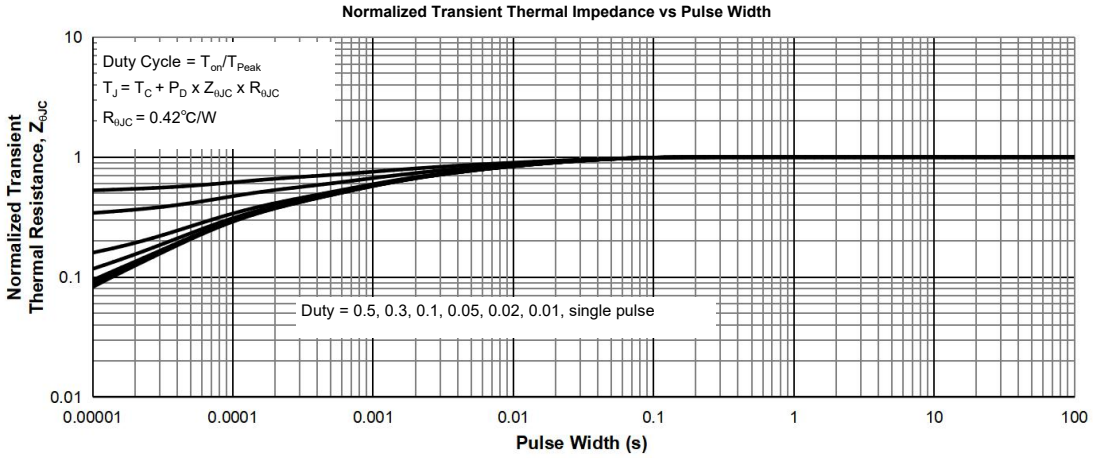
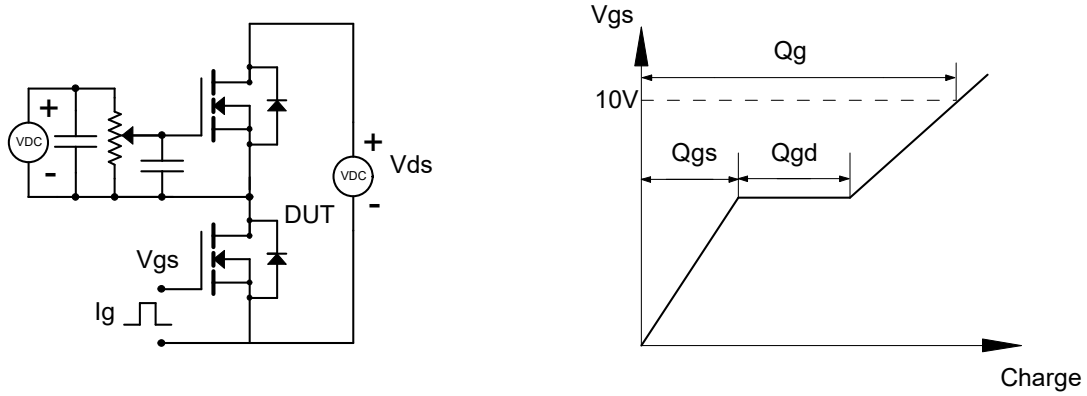




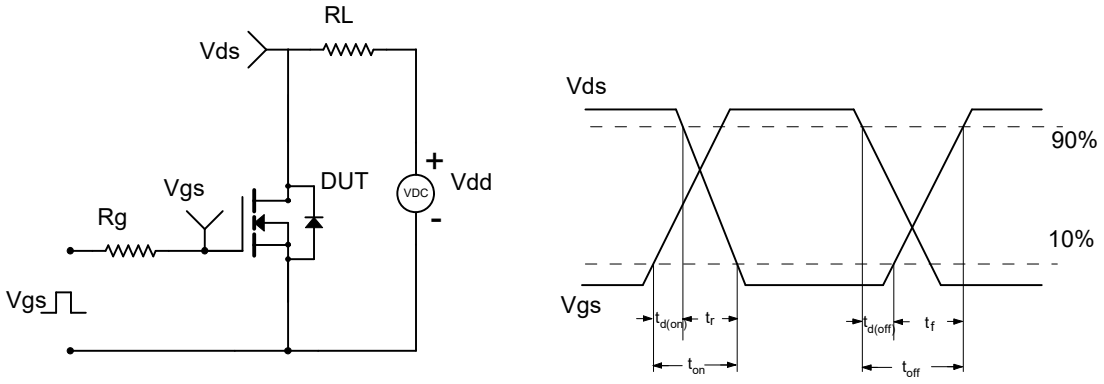


Typical Characteristics

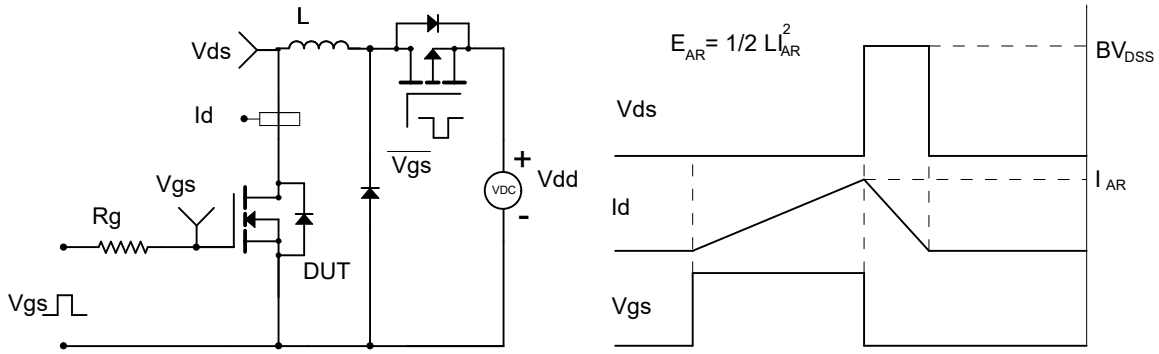
Gate Charge Test Circuit & Waveform

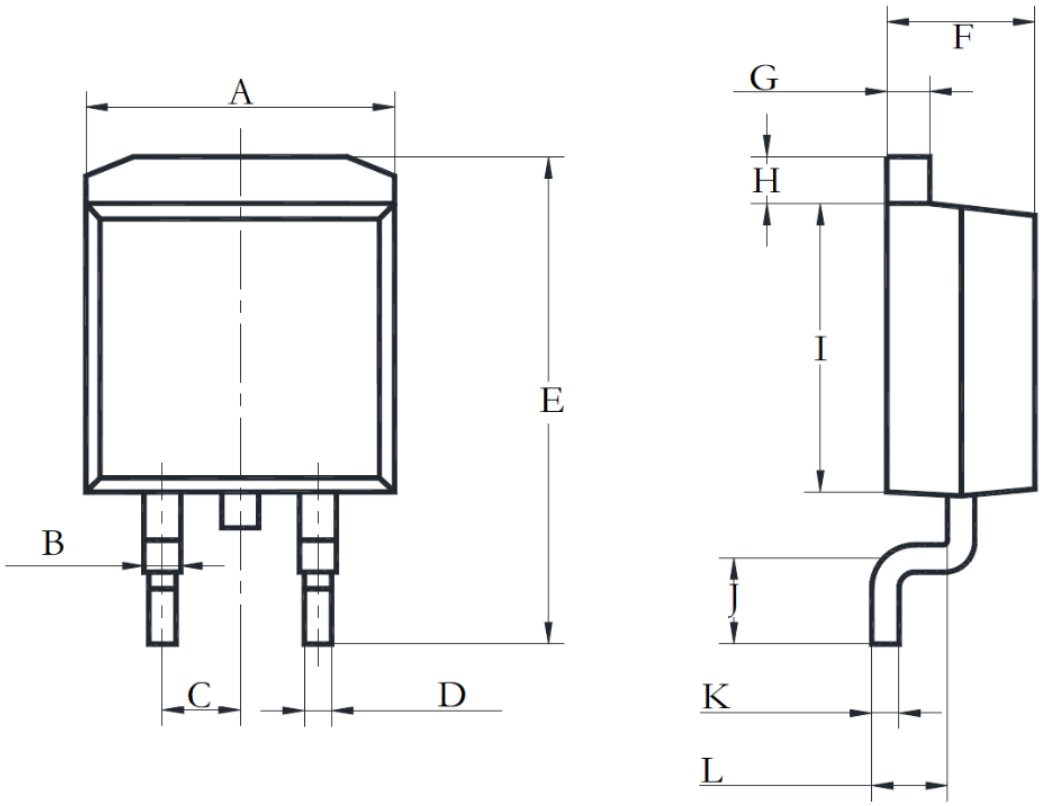


Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.600	10.500	0.378	0.413
B	1.000	1.400	0.039	0.055
C	2.540REF		0.100REF	
D	0.680	0.940	0.027	0.037
E	14.600	15.880	0.575	0.625
F	4.400	4.800	0.173	0.189
G	1.140	1.400	0.045	0.055
H	1.140	1.400	0.045	0.055
I	8.250	9.650	0.325	0.380
J	2.290	2.790	0.090	0.110
K	0.360	0.650	0.014	0.026
L	2.030	2.790	0.080	0.110