HIGH DIODE

T028N10NTH

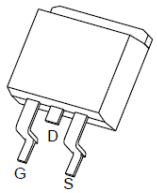
RoHS COMPLIANT

100V N-Channel MOSFET

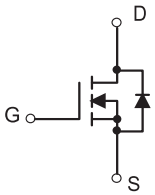
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	2.9mΩ@10V	195A

TO-263-2L



Schematic diagram



Feature

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

Application

- Power Switching Application
- DC/DC Converter

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
T028N10NTH	TO-263-2L	T028N10N	Reel & Tape	330mm	24mm	800pcs

ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ 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℃	I_D	195	A
	T_C = 100℃	I_D	125	A
Pulsed Drain Current[2]		I_{DM}	780	A
Single Pulsed Avalanche Current[3]		I_{AS}	61	A
Single Pulsed Avalanche Energy[3]		E_{AS}	936	mJ
Power Dissipation[5]	T_C = 25℃	P_D	277	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	49	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.45	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

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	3	4	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 40A		2.9	3.5	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, f = 0.1MHz		7390		pF
Output Capacitance	C_{oss}			968		
Reverse Transfer Capacitance	C_{rss}			57		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		0.6		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D = 40A		130		nC
Gate-source Charge	Q_{gs}			33.3		
Gate-drain Charge	Q_{gd}			38.2		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 50V, V_{GS} = 10V, I_D = 50A, R_G = 3Ω		50		ns
Turn-on Rise Time	t_r			55		
Turn-off Delay Time	$t_{d(off)}$			70		
Turn-off Fall Time	t_f			30		
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%.

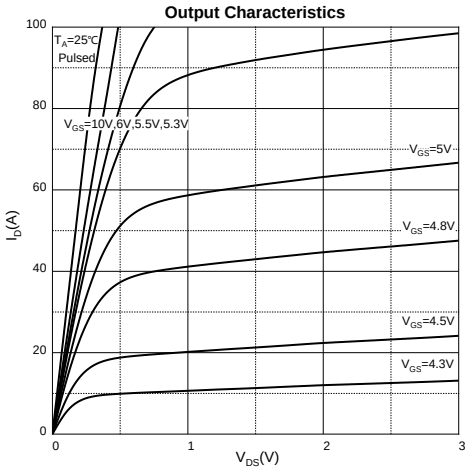
3.E_{AS} condition: V_{DD} = 50V,V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°℃.

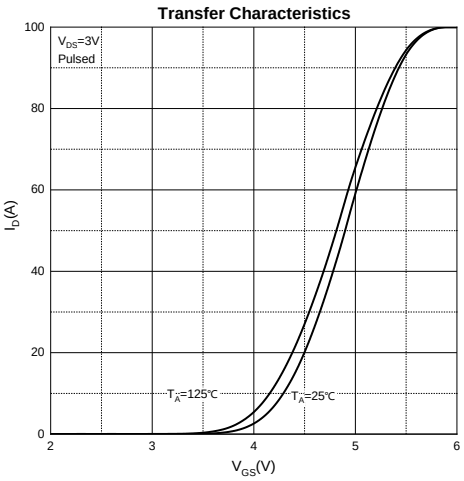
4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

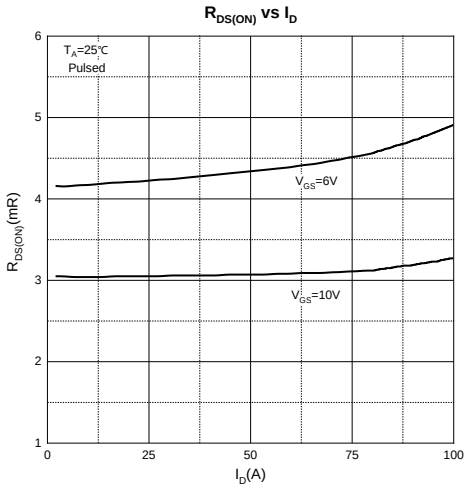
5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.And device mounted on a large heatsink

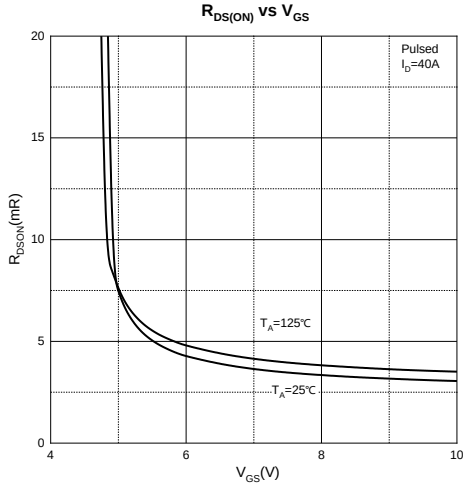
6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

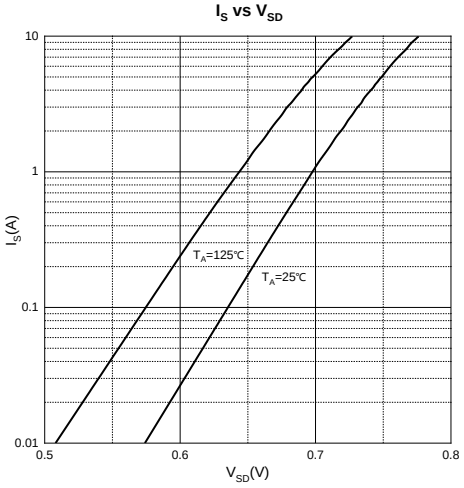
Typical Characteristics

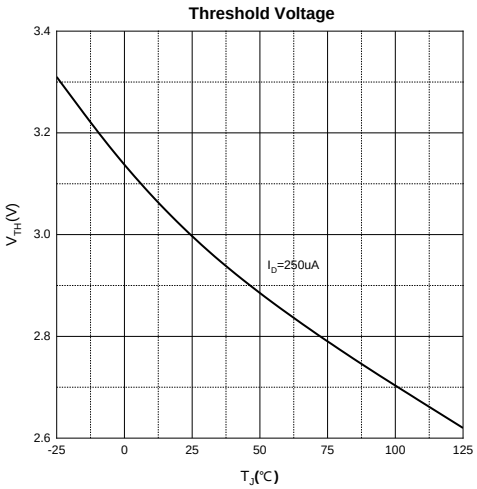






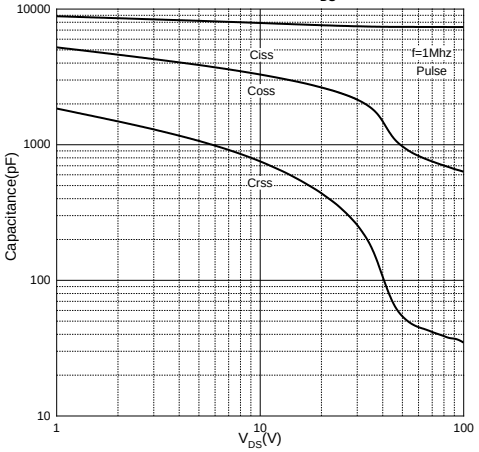




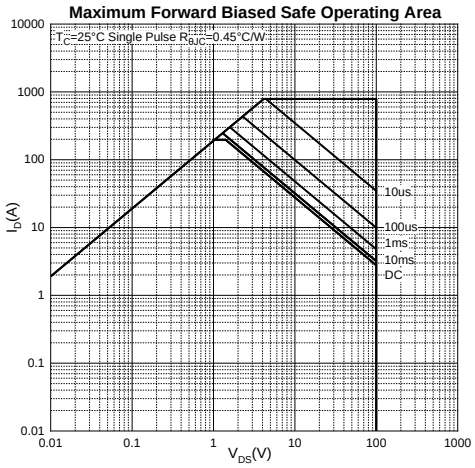


Typical Characteristics

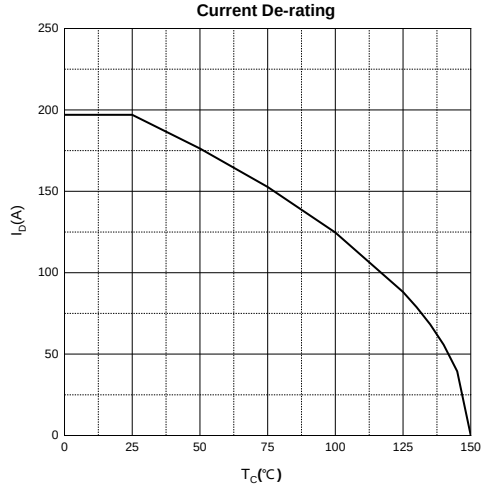
Capacitance vs V_{DS}



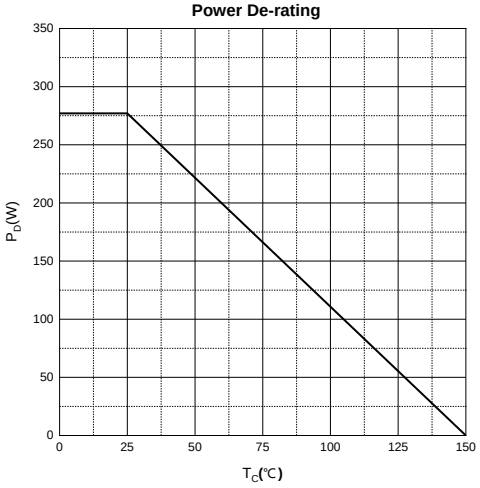
Maximum Forward Biased Safe Operating Area



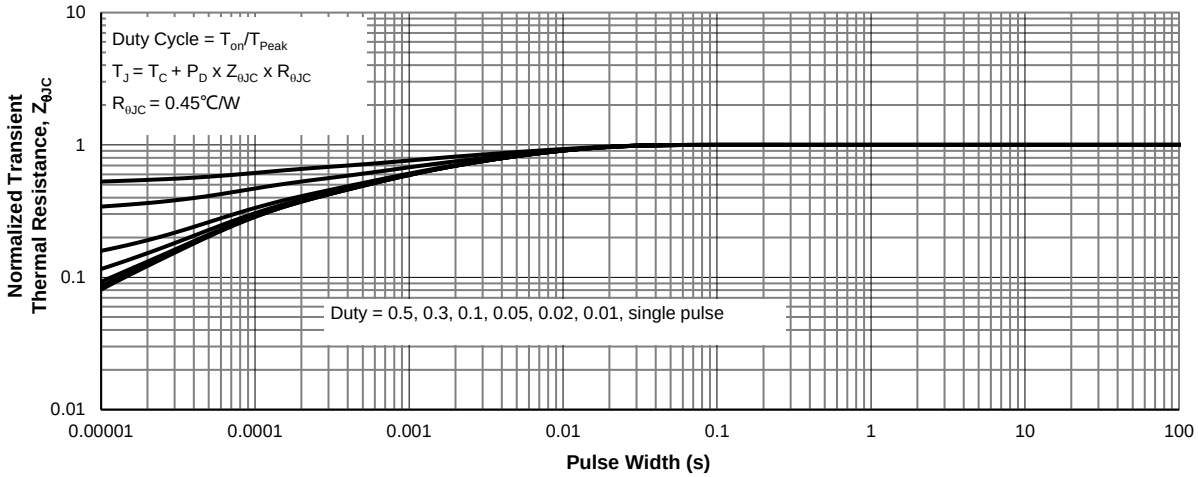
Current De-rating



Power De-rating

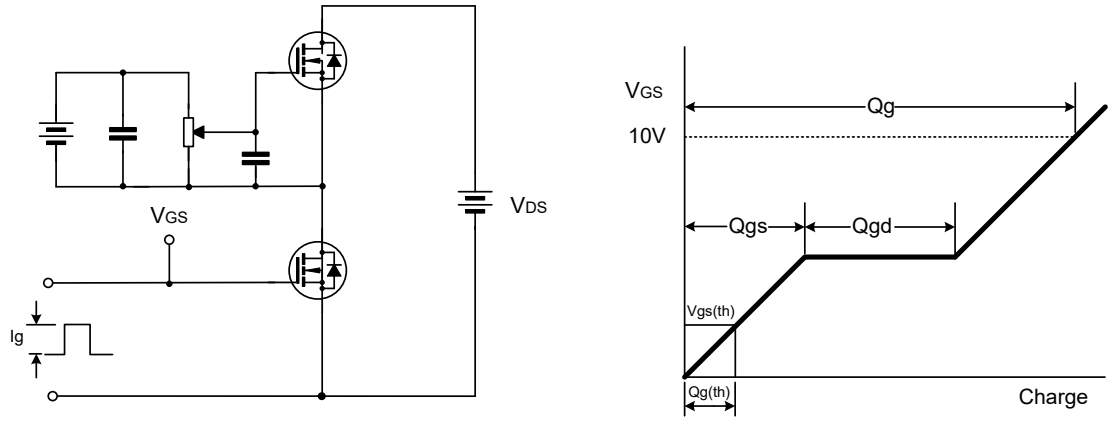


Normalized Maximum Transient Thermal Impedance

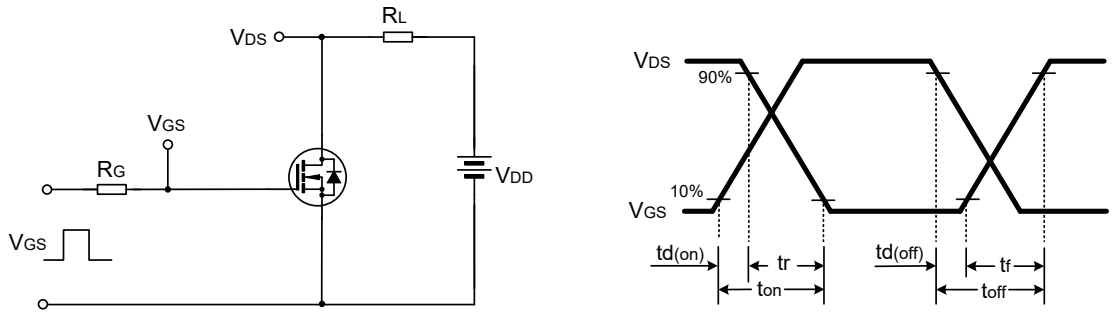


Typical Characteristics

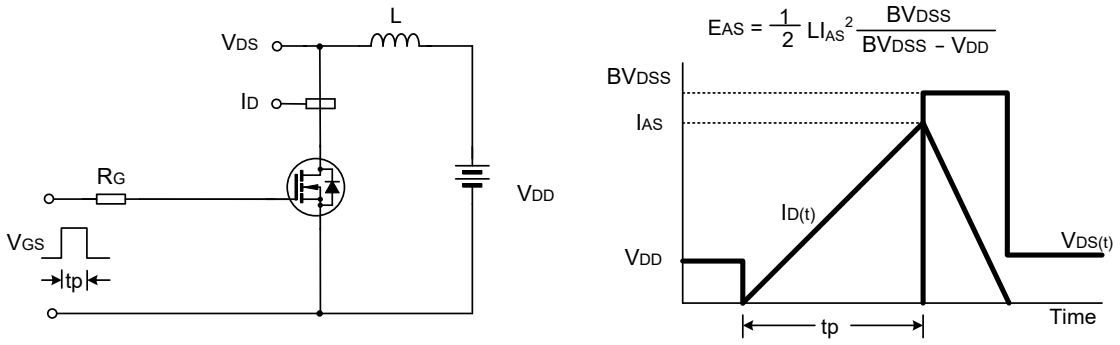
Gate Charge Test Circuit & Waveform



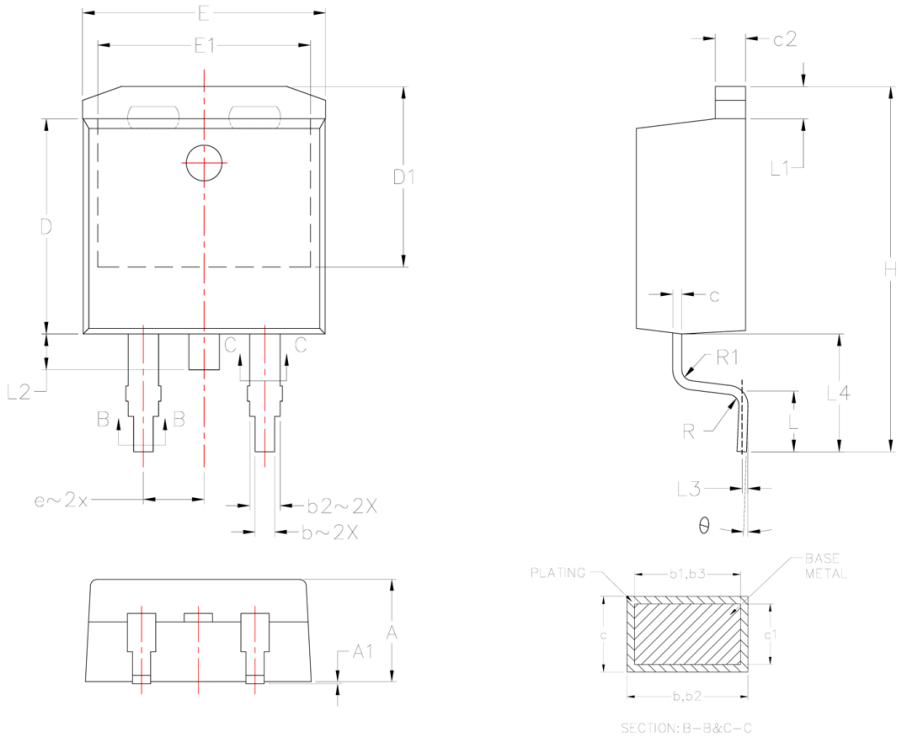
Resistive Switching Test Circuit & Waveform



E_{AS} Test Circuit & Waveform



TO-263-2L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.064	4.826	0.162	0.190
A1	0.000	0.254	0.000	0.010
b	0.508	0.991	0.020	0.039
b1	0.508	0.889	0.020	0.035
b2	1.143	1.778	0.045	0.070
b3	1.143	1.727	0.045	0.068
c	0.381	0.737	0.015	0.029
c1	0.381	0.584	0.015	0.023
c2	1.143	1.651	0.045	0.065
D	8.382	9.652	0.330	0.380
D1	6.858	-	0.270	-
E	9.652	10.668	0.380	0.420
E1	6.223	-	0.245	-
e	2.540TYP		0.100TYP	
H	14.605	15.875	0.575	0.625
L	1.778	2.794	0.070	0.110
L1	-	1.676	-	0.066
L2	-	1.778	-	0.070
L3	0.254TYP		0.010TYP	
L4	4.780	5.280	0.188	0.208
R	0.460TYP		0.018TYP	
R1	0.460TYP		0.018TYP	
Φ	0°	8°	0°	8°