

100V N-Channel MOSFET

Product Summary

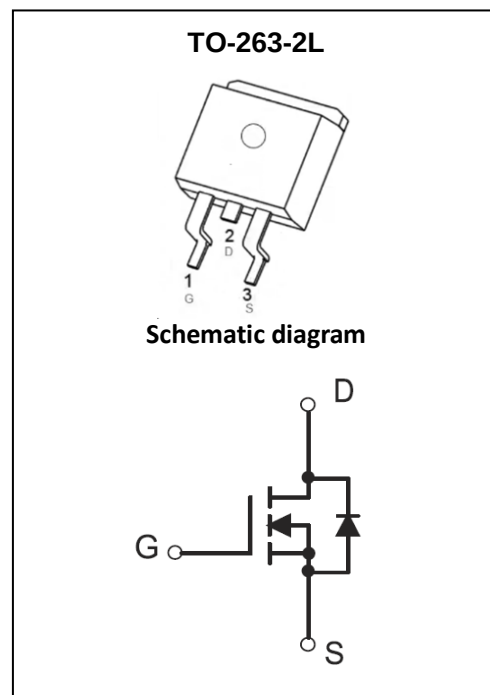
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.4mΩ@10V	175A

Feature

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

Application

- Power Management Switches
- Battery Management
- DC/DC Converter
- BLDC Motor drive systems



Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
T034N10NTH	TO-263-2L	T034N10N	Reel & Tape	330mm	24mm	800pcs

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	175	A
	$T_C = 100^\circ\text{C}$	I_D	110	A
Pulsed Drain Current ²		I_{DM}	700	A
Single Pulsed Avalanche Current ³		I_{AS}	56	A
Single Pulsed Avalanche Energy ³		E_{AS}	784	mJ
Power Dissipation ⁵		P_D	260	W
$T_C = 25^\circ\text{C}$				
Thermal Resistance from Junction to Ambient ⁶		$R_{\theta JA}$	55	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case		$R_{\theta JC}$	0.48	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

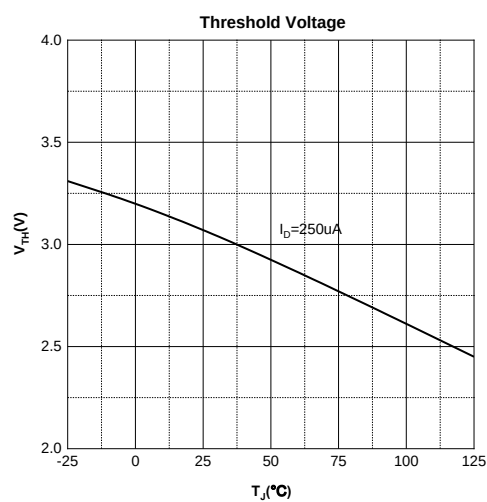
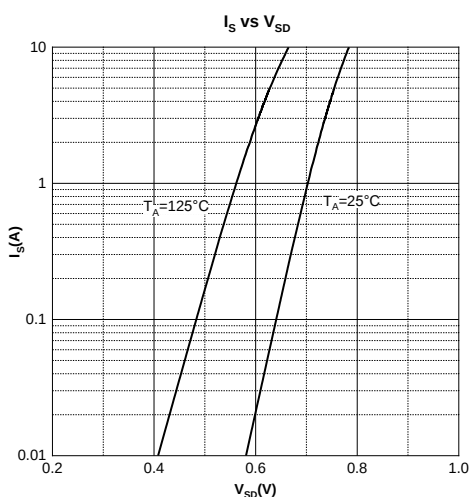
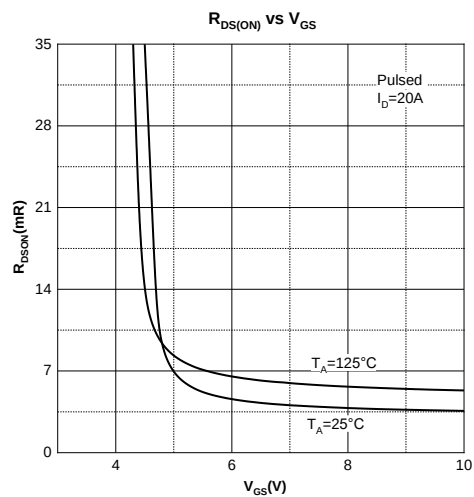
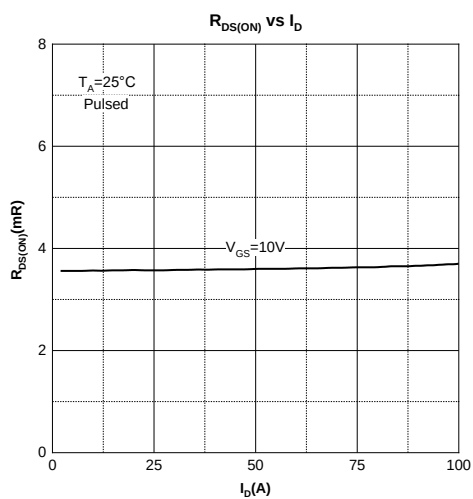
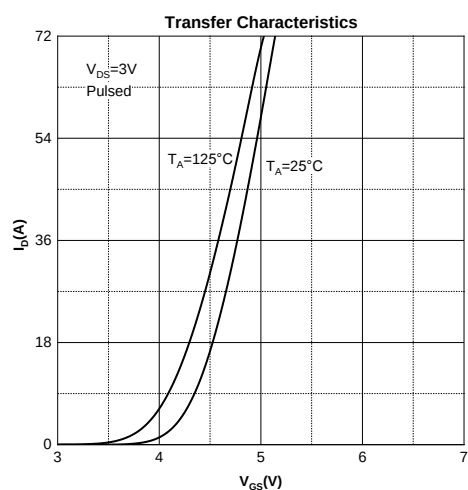
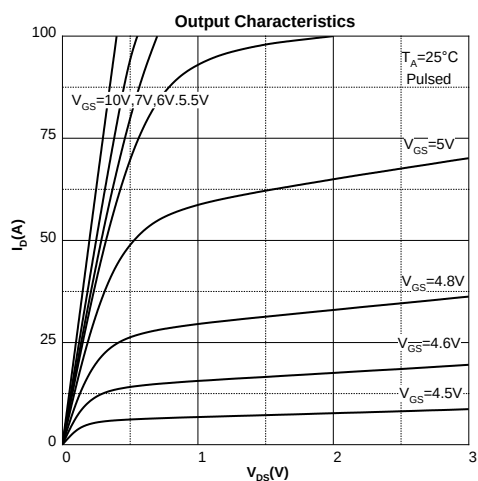
Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	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	3.1	4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		3.4	4.0	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		5649		pF
Output Capacitance	C _{oss}			949		
Reverse Transfer Capacitance	C _{rss}			35		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2.7		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 50V, V _{GS} = 10V, I _D = 20A		92		nC
Gate-Source Charge	Q _{gs}			25		
Gate-Drain Charge	Q _{gd}			23		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 50V, V _{GS} = 10V, I _D = 20A, R _G = 2.5Ω		27		ns
Turn-On Rise Time	t _r			36		
Turn-Off Delay Time	t _{d(off)}			58		
Turn-Off Fall Time	t _f			26		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 20A			1.2	V

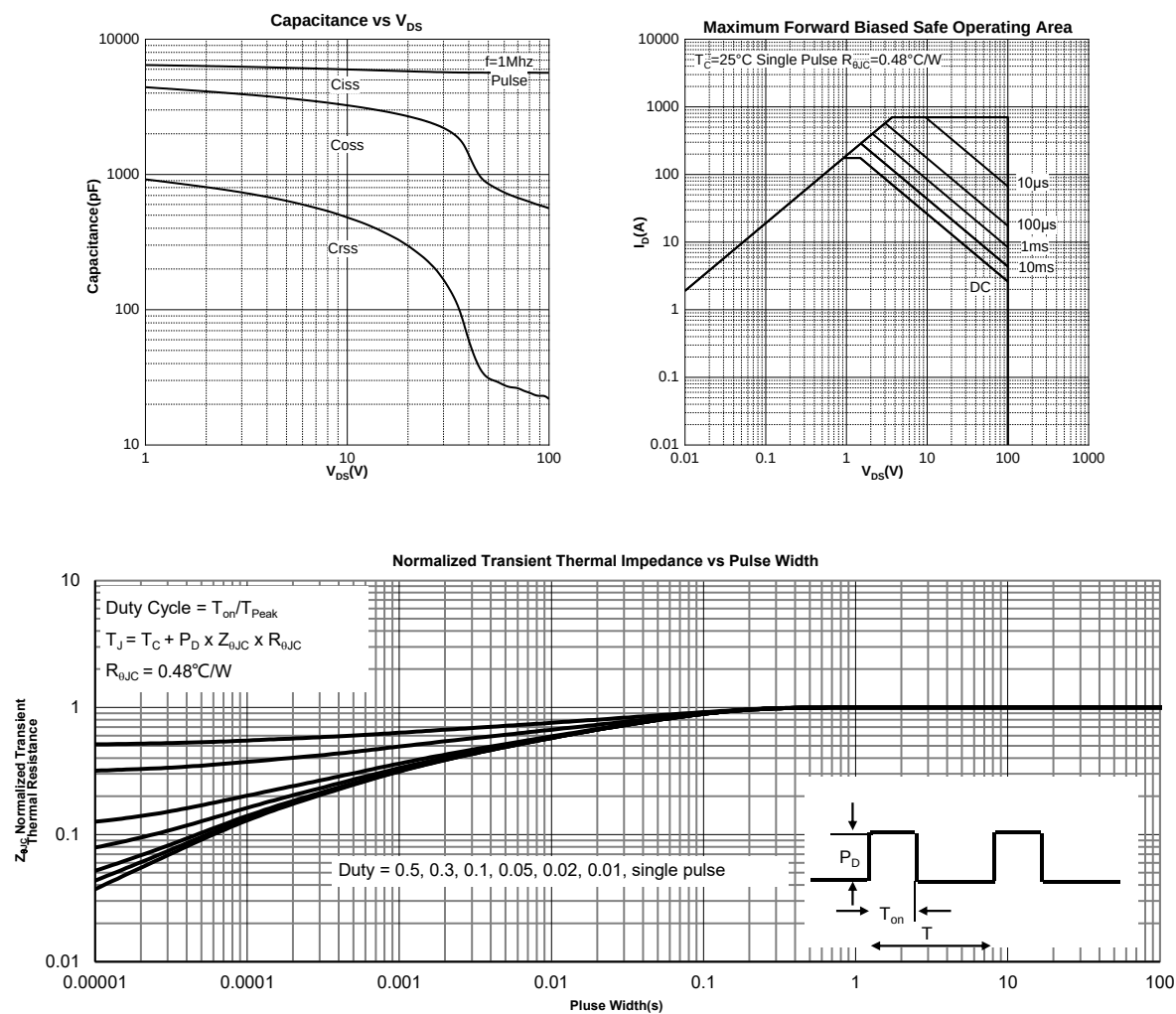
Notes :

- 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.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.

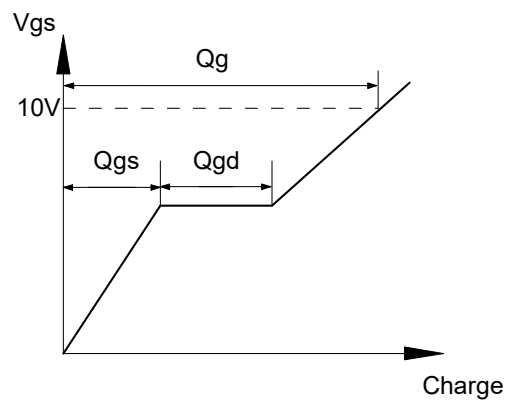
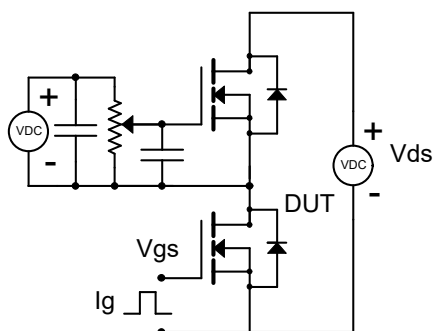
Typical Characteristics



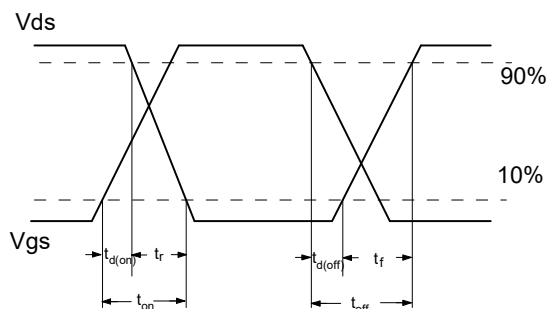
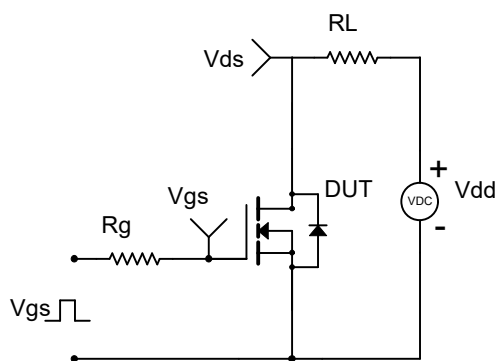
Typical Characteristics



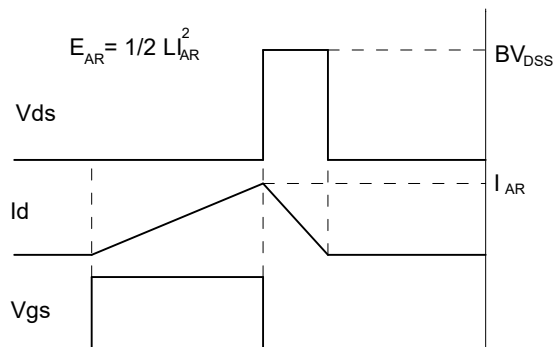
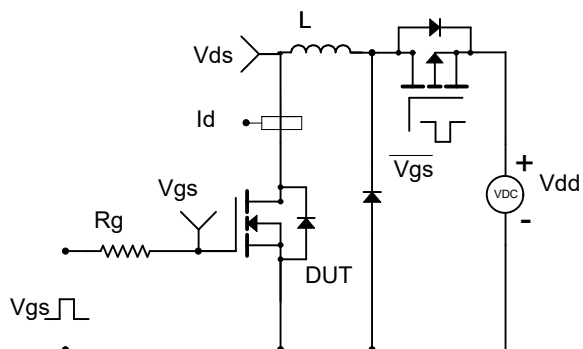
Gate Charge Test Circuit & Waveform

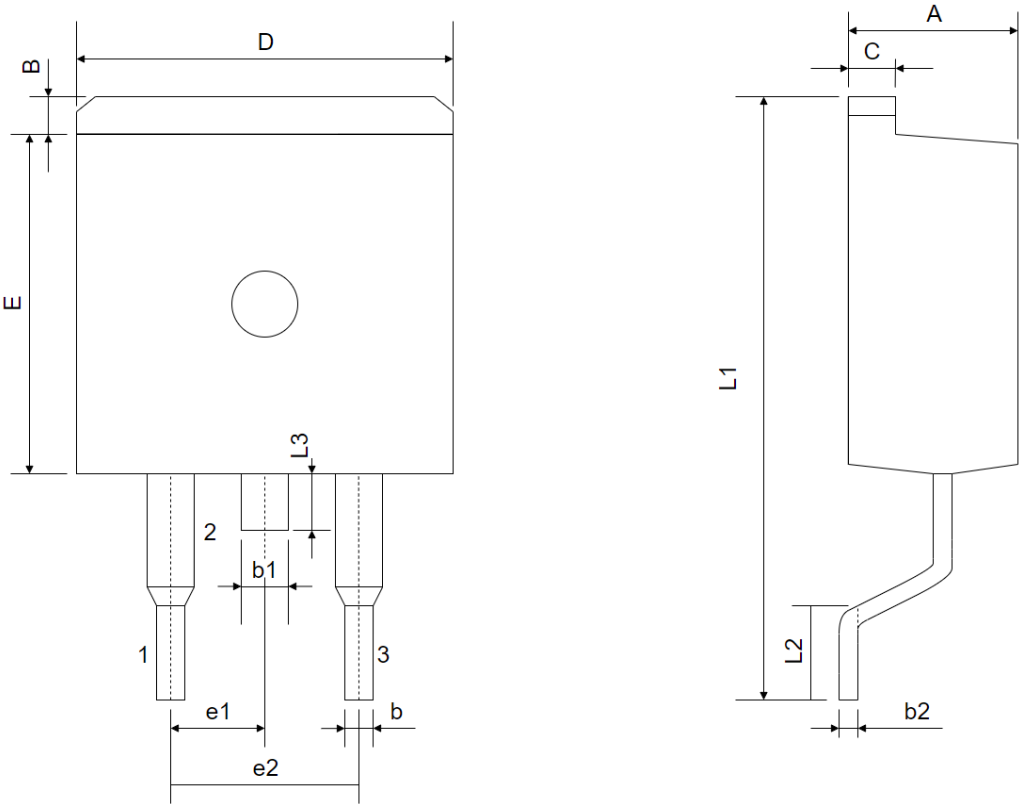


Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	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	1.40	0.045	0.053
b2	0.400	0.600	0.016	0.024
C	1.200	1.400	0.047	0.055
D	9.680	10.200	0.381	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	14.800	16.000	0.582	0.630
L2	2.100	2.840	0.083	0.112
L3	1.100	1.600	0.043	0.063