

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	2.6mΩ@10V	260A

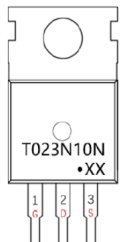
Feature

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

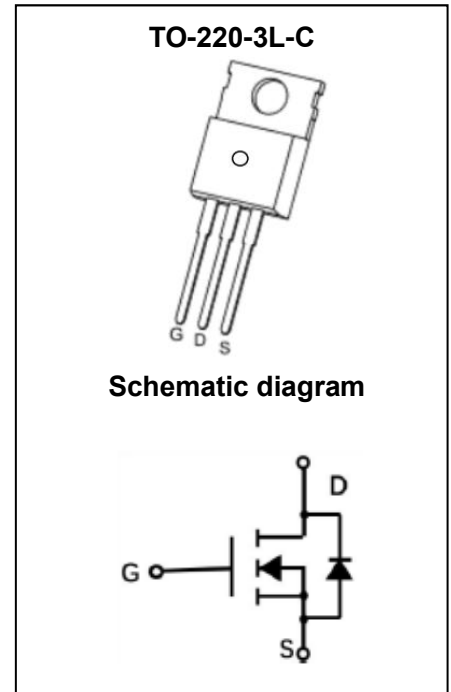
Application

- Power Switching Application

MARKING:



T023N10N = Device Code
 XX = Date Code
 Solid Dot = Green Indicator



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 ^{1,5}	I_D	$T_A = 25^\circ\text{C}$	260
		$T_A = 100^\circ\text{C}$	169
Pulsed Drain Current ²	I_{DM}	1040	A
Single Pulsed Avalanche Current	I_{AS}	77	A
Single Pulsed Avalanche Energy	E_{AS}	1482	mJ
Power Dissipation ^{4,5}	P_D	$T_A = 25^\circ\text{C}$	416
Thermal Resistance from Junction to Ambient ⁵		$R_{\theta JC}$	0.3
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

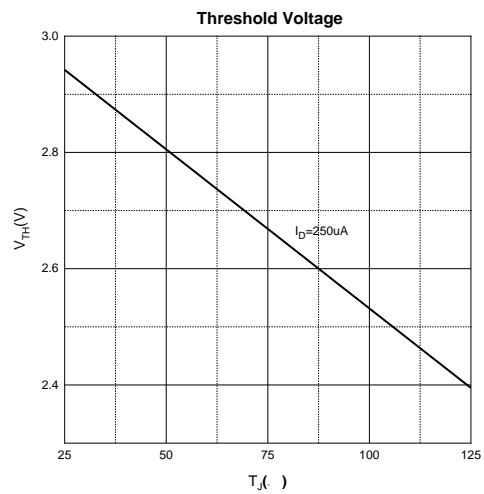
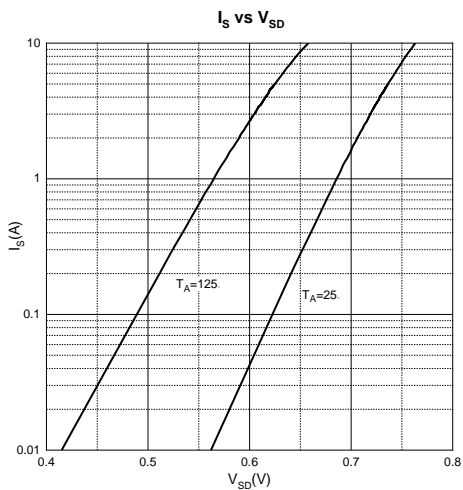
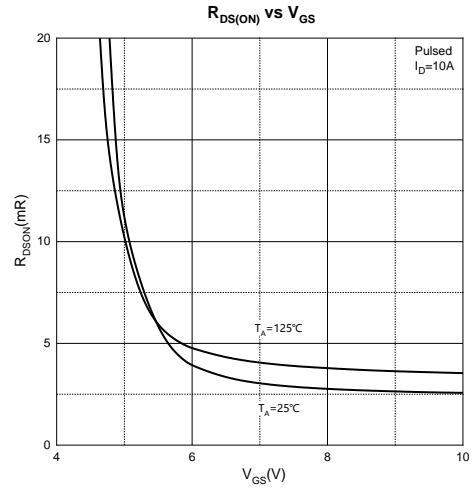
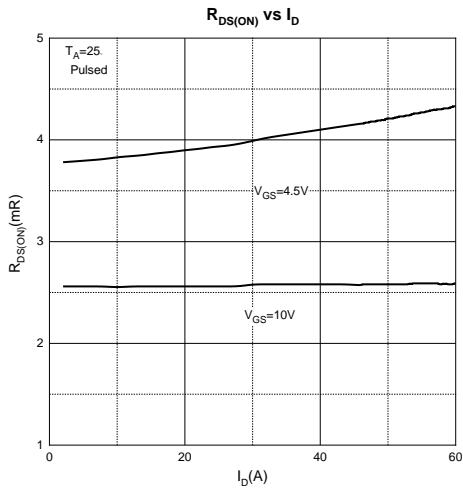
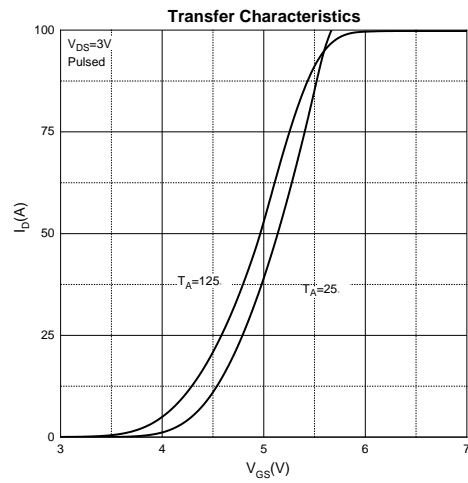
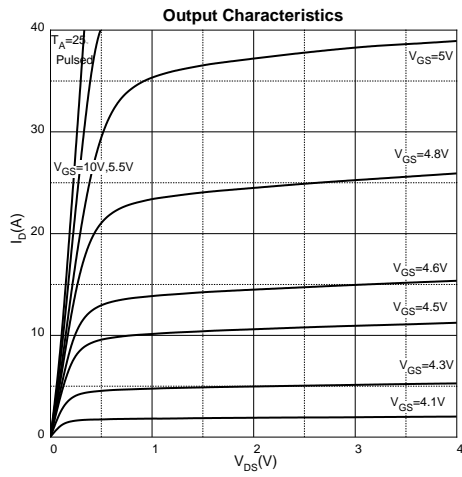
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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 Characteristics³						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		2.6	3	m Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 0.1\text{MHz}$		10531		pF
Output Capacitance	C_{oss}			1395		
Reverse Transfer Capacitance	C_{rss}			37		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1\text{MHz}$		3		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 20A$		54		nC
Gate-source Charge	Q_{gs}			6.9		
Gate-drain Charge	Q_{gd}			11.3		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 50V, V_{GS} = 10V, R_L = 2.5\Omega, R_G = 3\Omega$		40		ns
Turn-on Rise Time	t_r			60		
Turn-off Delay Time	$t_{d(off)}$			130		
Turn-off Fall Time	t_f			75		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	$V_{GS} = 0V, I_S = 20A$			1.2	V

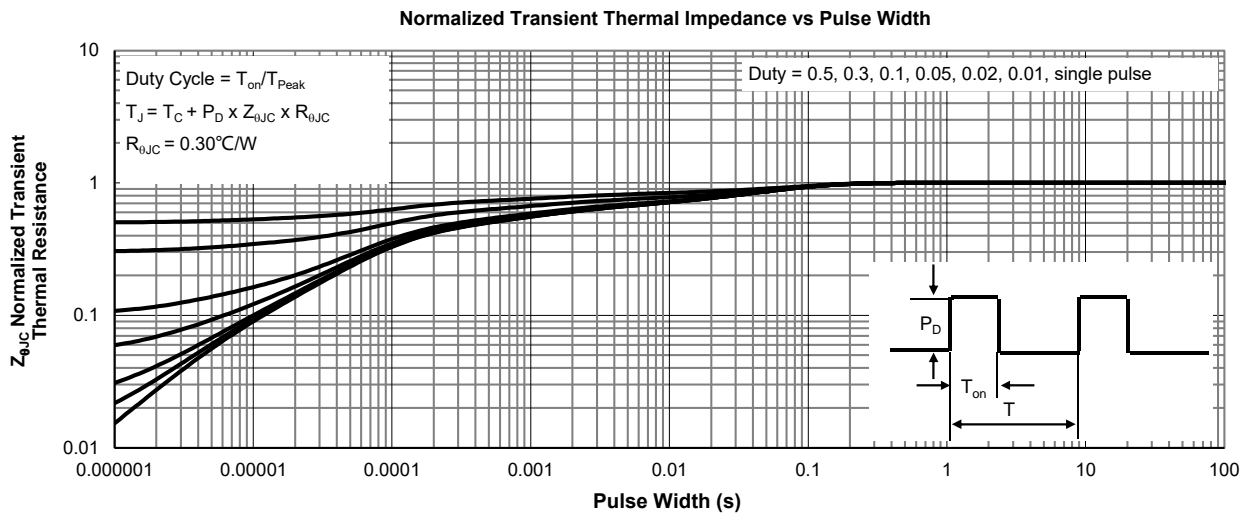
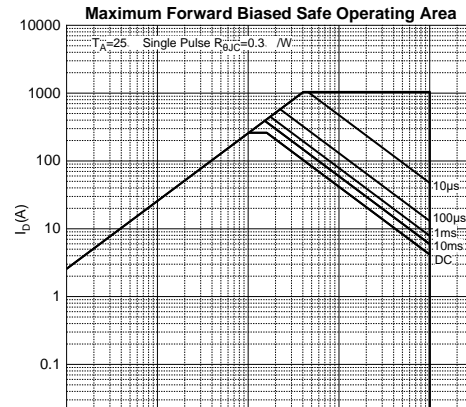
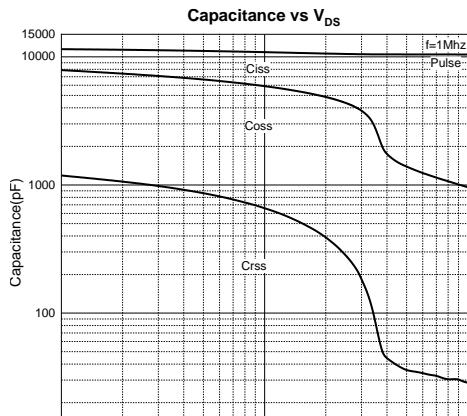
Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5\text{mH}, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
- 4.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 5.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.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 $T_A = 25^\circ\text{C}$.

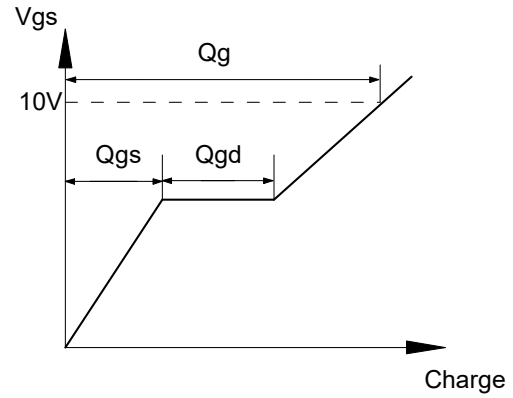
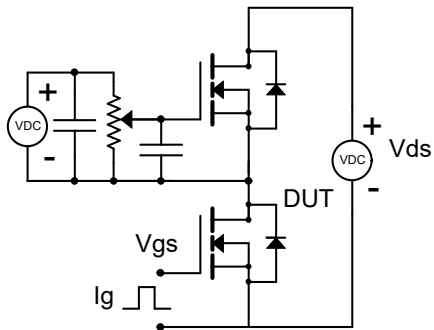
Typical Characteristics



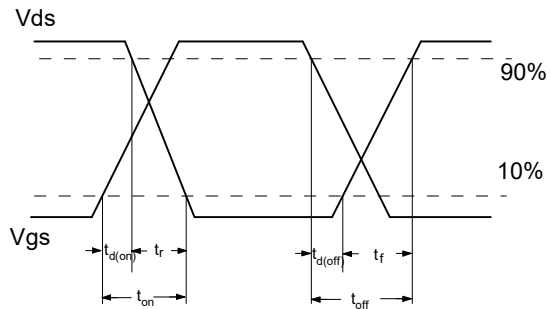
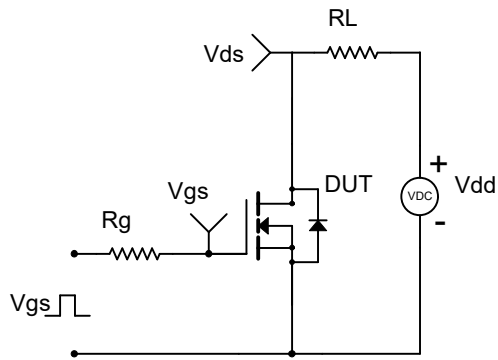
Typical Characteristics



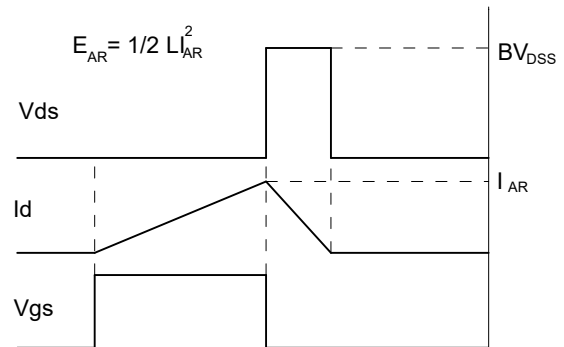
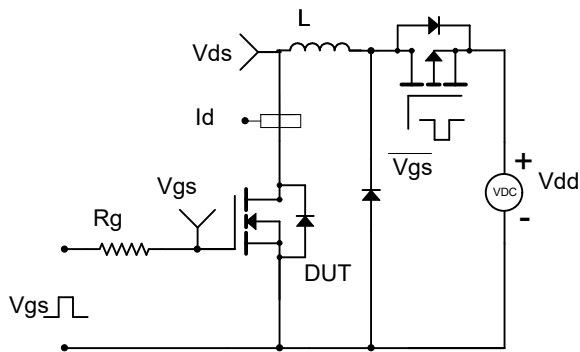
Gate Charge Test Circuit & Waveform



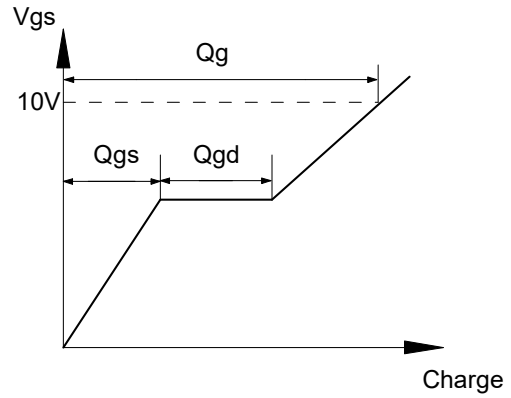
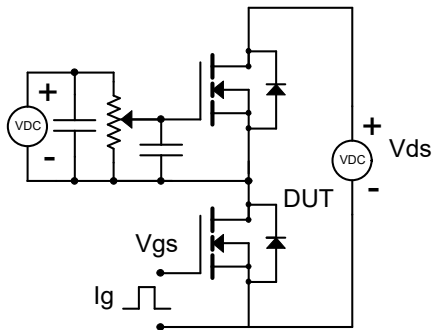
Resistive Switching Test Circuit & Waveform



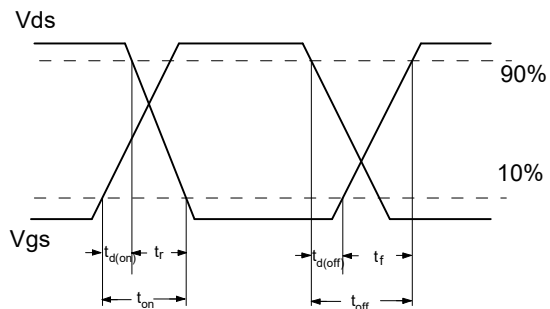
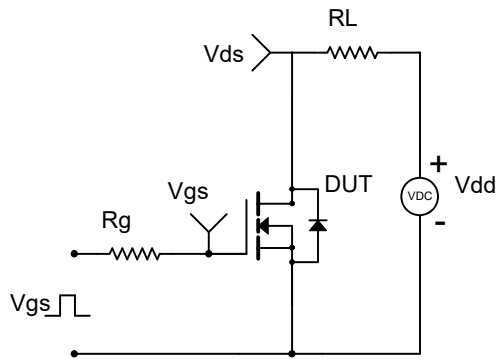
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



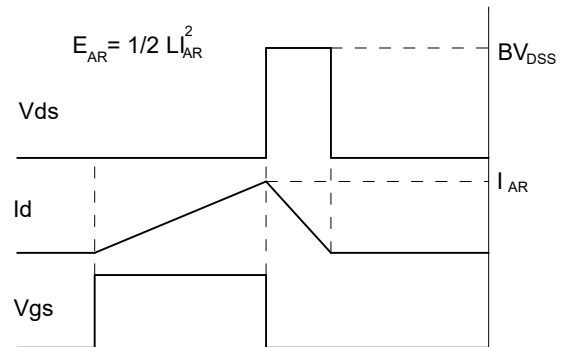
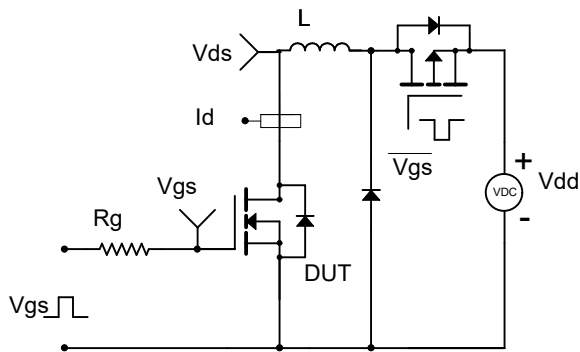
Gate Charge Test Circuit & Waveform

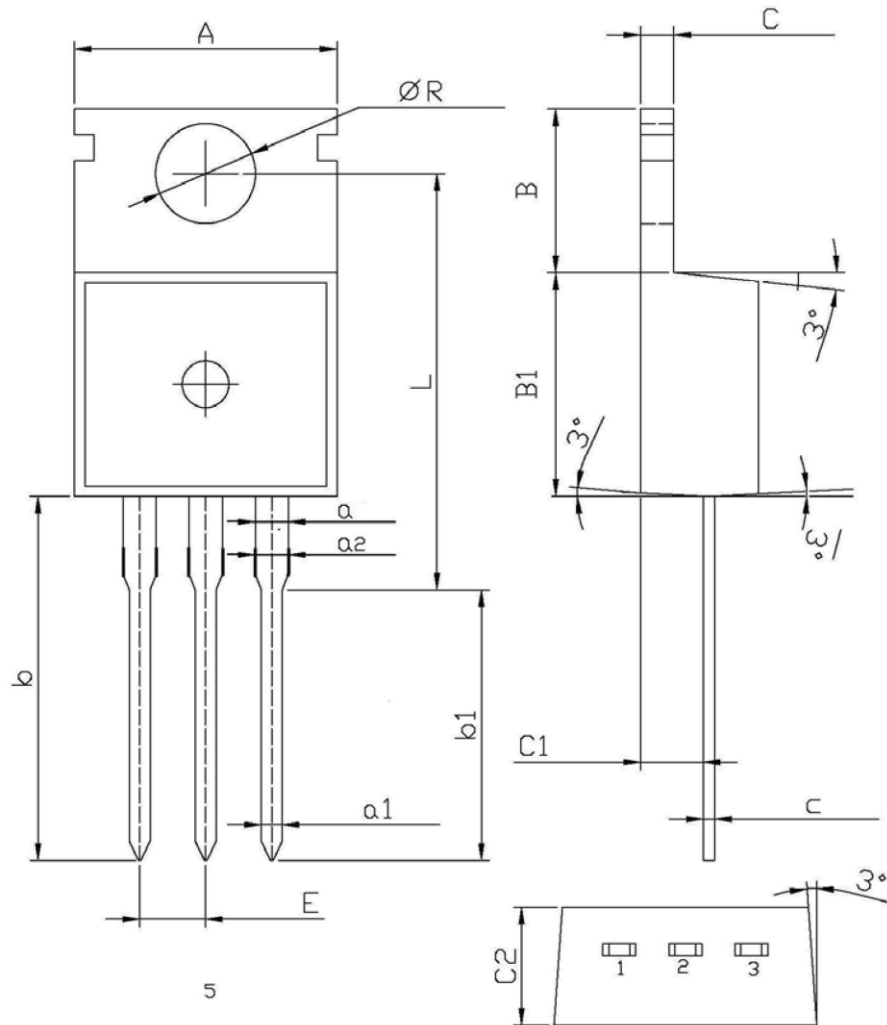


Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	9.800	10.200	0.386	0.402
R	3.560	3.640	0.140	0.143
L	15.700	16.100	0.618	0.634
b	12.600	13.600	0.496	0.535
b1	9.600	10.600	0.378	0.417
a	1.220	1.320	0.048	0.052
E	2.340	2.740	0.092	0.108
a2	1.250	1.620	0.049	0.064
C	1.200	1.400	0.047	0.055
B	5.900	6.700	0.232	0.264
B1	9.000	9.400	0.354	0.370
C1	2.200	2.600	0.087	0.102
a1	0.700	0.900	0.028	0.035
c	0.400	0.600	0.016	0.024
C2	4.300	4.700	0.169	0.185