

Product Summary

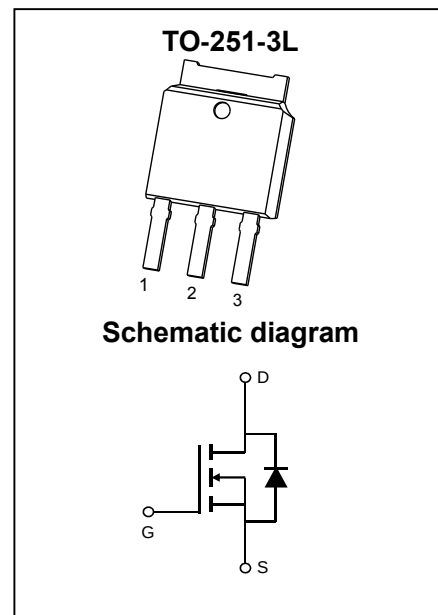
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	77mΩ@10V	15A
	83mΩ@4.5V	

Feature

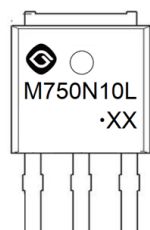
- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested
- 100% ΔV_{DS} Tested

Application

- Power Switching Application



MARKING:



M750N10L = 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	I_D	15	A
Pulsed Drain Current ²	I_{DM}	60	A
Single Pulsed Avalanche Current ³	I_{AS}	12.5	A
Single Pulsed Avalanche Energy ³	E_{AS}	39	mJ
Power Dissipation ⁵	P_D	25	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

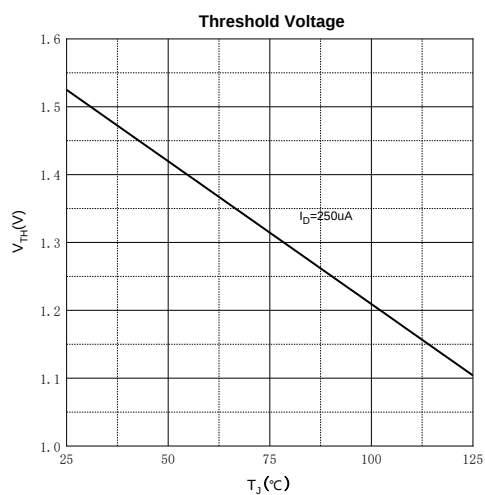
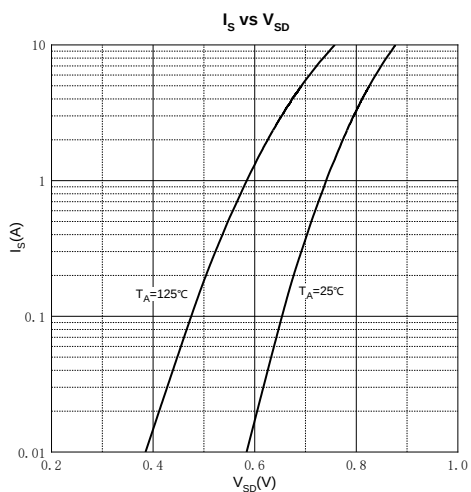
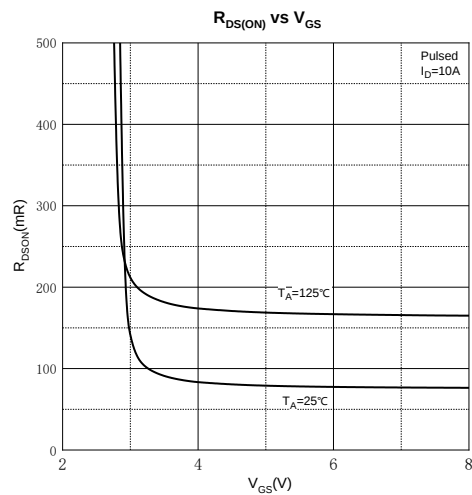
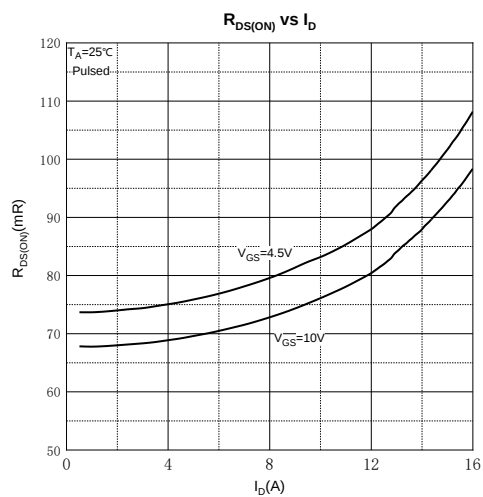
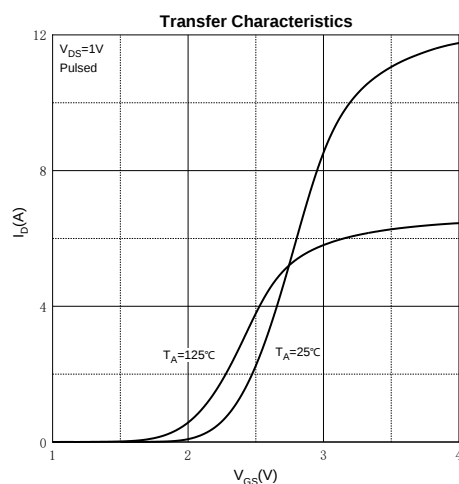
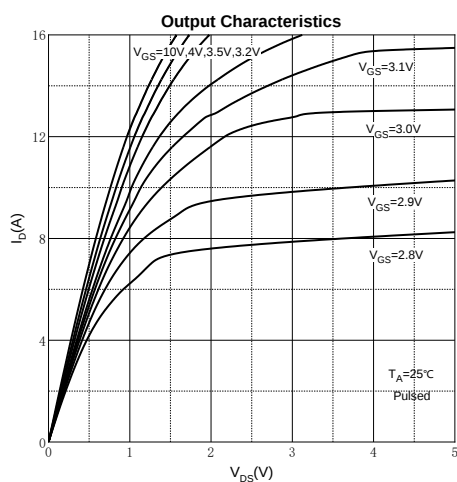
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

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 Characteristics ⁴						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$		77	100	m Ω
		$V_{GS} = 4.5V, I_D = 10A$		83	125	
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 10A$		16.5		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 45V, V_{GS} = 0V, f = 1MHz$		1045		pF
Output Capacitance	C_{oss}			32.6		
Reverse Transfer Capacitance	C_{rss}			29.5		
Gate Resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		2.0		Ω
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 45V, V_{GS} = 10V, I_D = 10A$		25.8		nC
Gate-source Charge	Q_{gs}			2.9		
Gate-drain Charge	Q_{gd}			6.2		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 50V, V_{GS} = 10V, R_L = 10\Omega$ $R_G = 3\Omega$		6		ns
Turn-on Rise Time	t_r			2.5		
Turn-off Delay Time	$t_{d(off)}$			18		
Turn-off Fall Time	t_f			2.5		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	$V_{GS} = 0V, I_S = 10A$			1.2	V

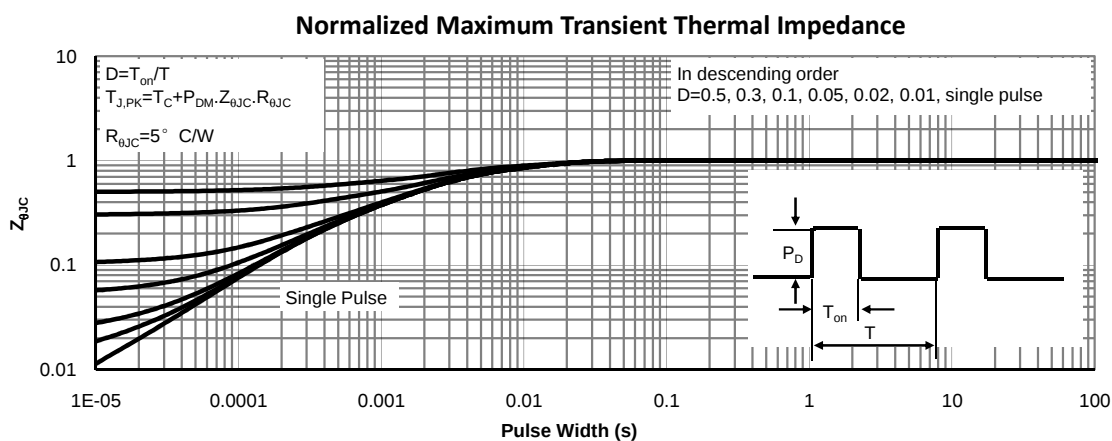
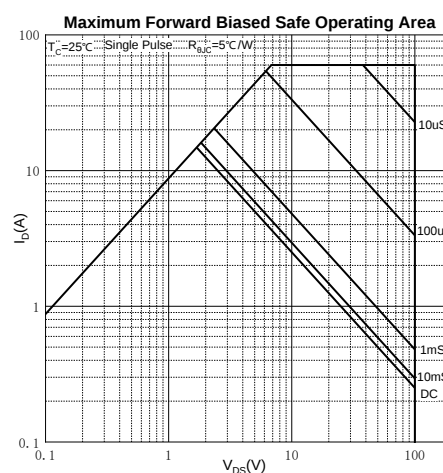
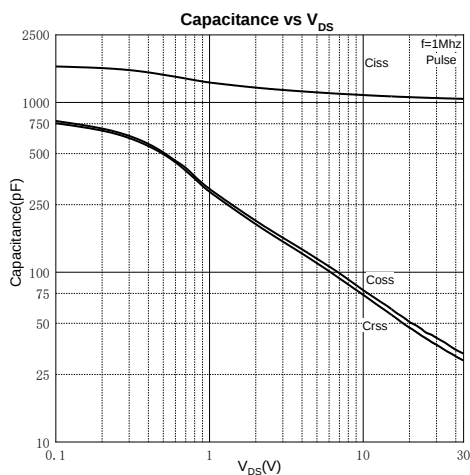
Notes :

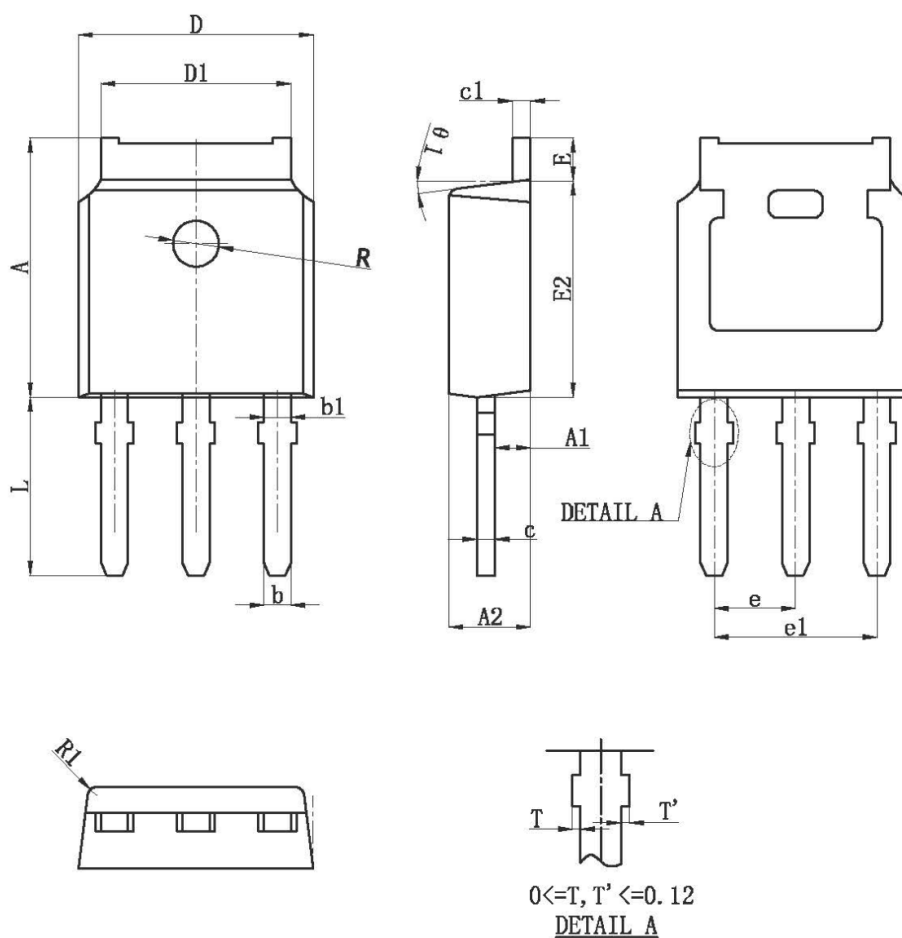
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.EAS condition: $V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^{\circ}\text{C}$.
- 4.Pulse Test : Pulse Width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



TO-251-3L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	7.050	7.150	0.278	0.281
A1	0.960	1.060	0.038	0.42
A2	2.250	2.350	0.089	0.93
b	0.760REF		0.030REF	
b1	1.000REF		0.040REF	
c	0.508REF		0.02REF	
c1	0.508REF		0.02REF	
D	6.550	6.650	0.258	0.262
D1	5.220	5.420	0.206	0.213
E	0.950	1.050	0.037	0.041
E2	6.050	6.150	0.238	0.242
e	2.286BSC		0.09BSC	
e1	4.472REF		0.176REF	
L	4.800	5.200	0.189	0.205
θ1	7°REF		7°REF	
R	0.250REF		0.010REF	