

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	76m Ω @10V	15A

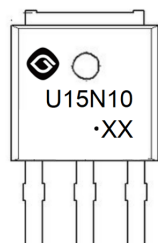
Feature

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

Application

- Power Switching Application

MARKING:

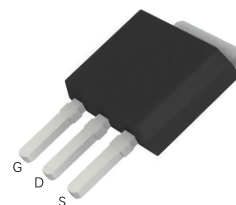


U15N10 = Device Code

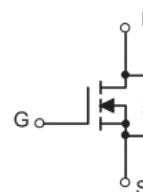
XX = Date Code

Solid Dot = Green Indicator

TO-251-3L



Schematic diagram



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}	45	A
Single Pulsed Avalanche Energy ³	E_{AS}	12	mJ
Power Dissipation ⁵	P_D	1.25	W
Thermal Resistance from Junction to Ambient ⁶	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

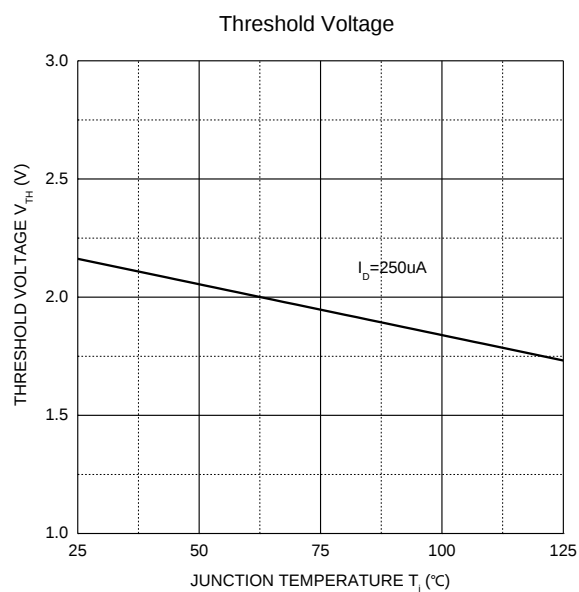
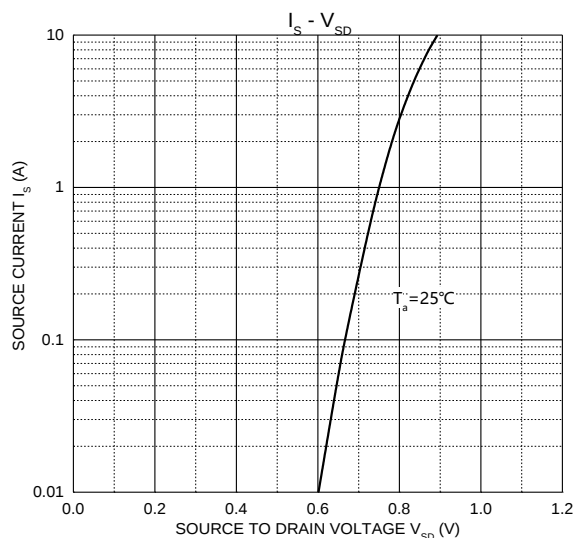
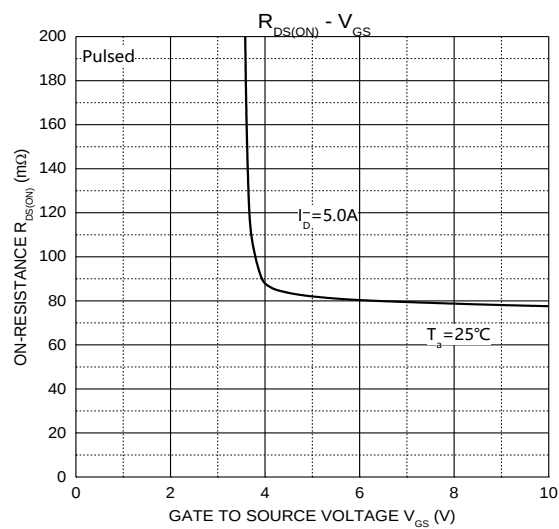
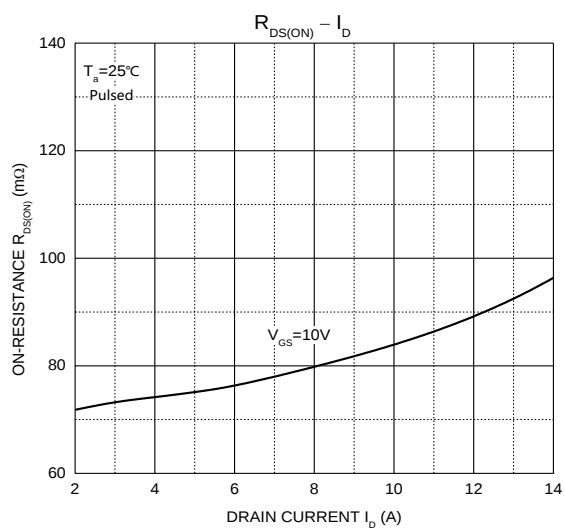
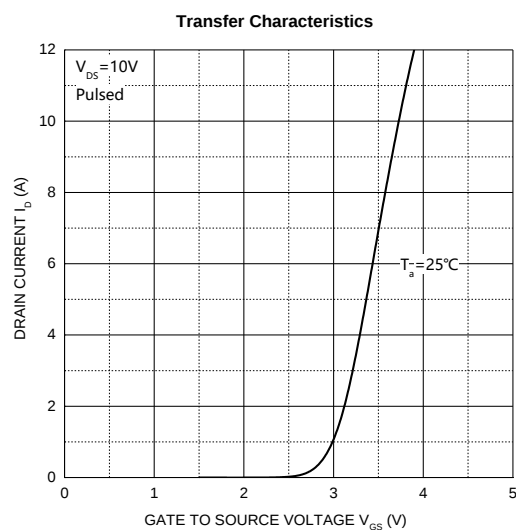
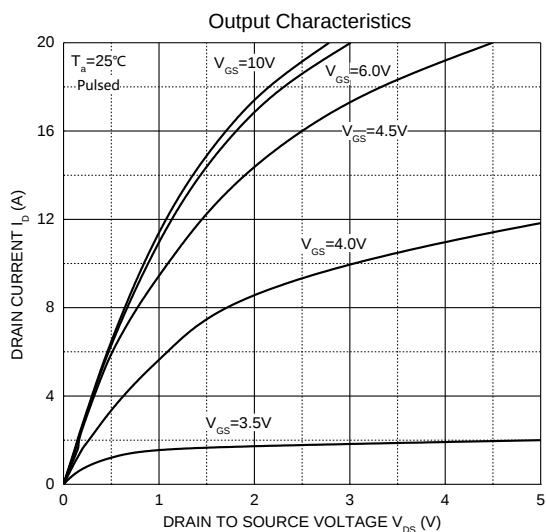
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

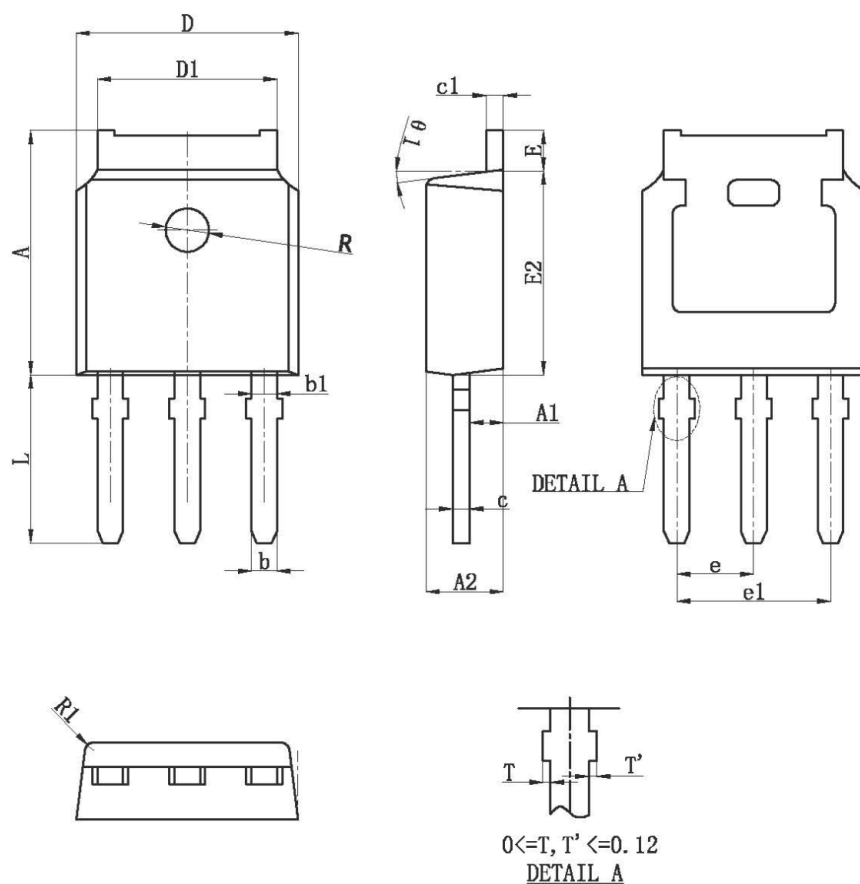
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ⁴						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	2.0	3.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 8A		76	105	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		580		pF
Output Capacitance	C _{oSS}			50		
Reverse Transfer Capacitance	C _{rSS}			40		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 10V, I _D = 3A		17		nC
Gate-source Charge	Q _{gs}			4		
Gate-drain Charge	Q _{gd}			5		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, R _L = 15Ω R _G = 2.5Ω		13		ns
Turn-on Rise Time	t _r			8		
Turn-off Delay Ttime	t _{d(off)}			25		
Turn-off Fall Time	t _f			11		
Source - Drain Diode Characteristics						
Diode Forward Voltage ⁴	V _{SD}	V _{GS} = 0V, I _S = 10A		0.85	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: $V_{DD} = 15V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$ 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 Electrical and Thermal 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
θ	7°REF		7°REF	
R	0.250REF		0.010REF	