

General Description

The Sanrise SRT15N750L uses advanced split gate trench technology. It has extremely low on resistance, low gate charge and fast switching time. This device is ideal for TV, Adapter applications and DC/DC converters.

The SRT15N750L break down voltage is 150V and it has a high rugged avalanche characteristic. The SRT15N750L is available in SOP8 and PDFN5*6 and TO-252 packages.

Features

- Ultra Low $R_{DS(ON_TYP)} = 57m\Omega @ V_{GS} = 10V$.
- Ultra Low Gate Charge, $Q_g = 7nC$ typ.
- Fast switching capability
- Robust design with better EAS performance
- Non-automotive Qualified

Application

- TV Power
- LED Lighting Power
- DC/DC Converter

Symbol

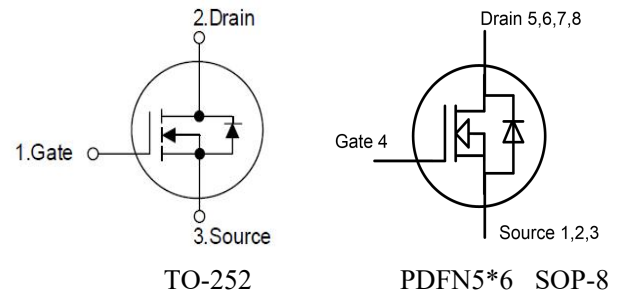


Figure 1 Symbol of SRT15N750L

Package Type

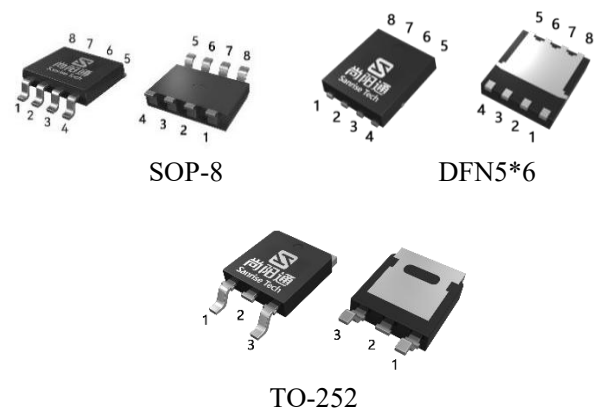
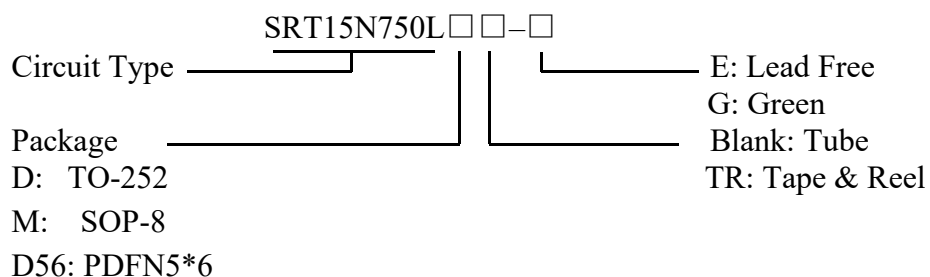


Figure 2 Package Types of SRT15N750L

Ordering Information



Package	Part Number	Marking ID	Packing Type
TO-252	SRT15N750LDTR-G	SRT15N750LDG	Tape & Reel
SOP-8	SRT15N750LMTR-G	15N750LMG	Tape & Reel
PDFN5*6	SRT15N750LD56TR-G	SRT15N750LD56G	Tape & Reel

Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	150	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	$T_C=25^{\circ}\text{C}$	SOP8	8.2	A
		PDFN5*6	20.0	
		TO-252	18.2	
	$T_C=100^{\circ}\text{C}$	SOP8	4.5	
		PDFN5*6	14.0	
		TO-252	11.5	
Pulsed Drain Current (Note 2)		SOP8	33	A
		PDFN5*6	80	
		TO-252	73	
Avalanche Destructive Energy, Single Pulse (Note 4)		E_{AS_Limit}	100	mJ
Avalanche Energy, Single Pulse (Note 3)		E_{AS}	10.2	mJ
Continuous Diode Forward Current		I_S	18.2	A
Diode Pulse Current		I_{S_PULSE}	73	A
Max Power Dissipation		P_D	57	W
Operating Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 to 150	$^{\circ}\text{C}$
Lead Temperature (Soldering, 10 sec)		T_{LEAD}	260	$^{\circ}\text{C}$

Note:

- Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
- Repetitive Rating: Pulse width limited by maximum junction temperature
- $I_{AS}=6.4\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$
- $I_{AS_Limit}=20\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$

Thermal Characteristics

Parameter		Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Lead	SOP8	R_{thJC}			25	$^{\circ}\text{C}/\text{W}$
	Thermal Resistance, Junction-to-Case		PDFN5*6			
TO-252					2.2	
Thermal Resistance, Junction-to-Ambient	SOP8	R_{thJA}			62	
	PDFN5*6				41.7	
	TO-252				62	

Electrical Characteristics
 $T_J = 25^\circ\text{C}$, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	Forward	$I_{GSSF}, V_{GS}=20V, V_{DS}=0V$			100	nA
	Reverse	$I_{GSSR}, V_{GS}=-20V, V_{DS}=0V$			-100	
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=0.25mA$	1.4	2.0	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$		57	75	mΩ
		$V_{GS}=4.5V, I_D=8A$		65	90	
Gate Resistance	R_G	$f=1MHz, \text{Open Drain}$		4		Ω
Dynamic Characteristics						
Input Capacitance	C_{ISS}	$V_{DS}=75V, V_{GS}=0V, f=1MHz$		566		pF
Output Capacitance	C_{OSS}			61		pF
Reverse Transfer Capacitance	C_{RSS}			2.4		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=75V, I_D=10A, R_G=1.6\Omega, V_{GS}=10V$		9		ns
Rise Time	t_r			7		
Turn-off Delay Time	$t_{d(off)}$			13		
Fall Time	t_f			4		
Gate Charge Characteristics						
Gate to Source Charge	Q_{gs}	$V_{DD}=75V, I_D=10A, V_{GS}=0 \text{ to } 10V$		2.5		nC
Gate to Drain Charge	Q_{gd}			1.2		
Gate Charge Total	Q_g			7		
Gate Plateau Voltage	$V_{plateau}$			4.5		V
Reverse Diode Characteristics						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=10A$		0.86	1.0	V
Reverse Recovery Time	t_{rr}	$V_R=75V, I_F=10A$		35		ns
Reverse Recovery Charge	Q_{rr}	$dI_F/dt=100A/\mu s$		135		nC



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