

General Description

The Sanrise SRT03N010LD56TR-G uses advanced split gate trench technology. It has extremely low on resistance, low gate charge and fast switching time. This device is ideal for Motor driver, BMS, DCDC converter and power management.

The SRT03N010LD56TR-G break down voltage is 30V and it has a high rugged avalanche characteristic.

The SRT03N010LD56TR-G is available in PDFN5*6 package.

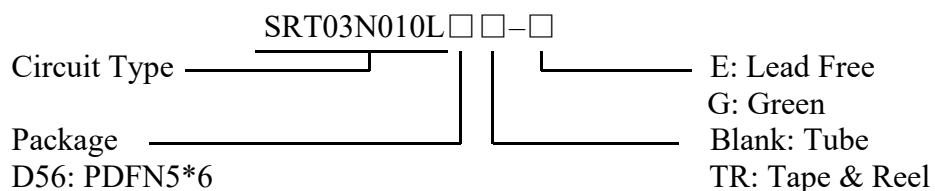
Features

- Ultra Low $R_{DS(ON)} = 0.8m\Omega @ V_{GS} = 10V$.
- Ultra Low Gate Charge, $Q_g = 90nC$ typ.
- Fast switching capability
- Robust design with better EAS performance
- Non-automotive Qualified

Application

- Server / Telecom
- High Power Supply, such as DCDC converter
- Motor Driver, such as E-Tools
- BMS

Ordering Information



Symbol

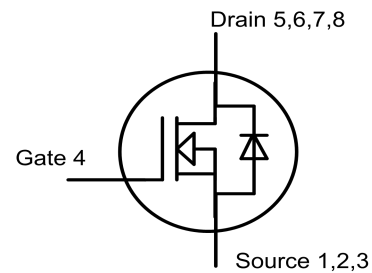


Figure 1 Symbol of SRT03N010LD56TR-G

Package Type

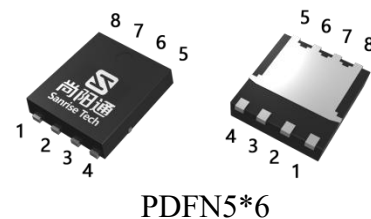


Figure 2 Package Type of SRT03N010LD56TR-G

Package	Part Number	Marking ID	Packing Type
PDFN5*6	SRT03N010LD56TR-G	SRT03N010LD56G	Tape & Reel

Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	284	A
	$T_C=100^{\circ}C$		180	
Pulsed Drain Current (Note 2)		I_{DM}	892	A
Power Dissipation ($T_C = 25^{\circ}C$)		P_D	178	W
Avalanche Energy, Single Pulse (Note 3)		E_{AS}	180	mJ
Avalanche Current, Repetitive (Note 2)		I_{AR}	60.0	A
Continuous Diode Forward Current		I_S	284	A
Diode Pulse Current		$I_{S,PULSE}$	892	A
Operating Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Lead Temperature (Soldering, 10 sec)		T_{LEAD}	260	°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
- $I_{AS} = 60.0A$, $V_{DD} = 30V$, $R_G = 25\Omega$, Starting $T_J = 25^{\circ}C$

Thermal Characteristics

Parameter		Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	PDFN5*6	R_{thJC}		0.5	0.7	°C/W
Thermal Resistance, Junction-to-Ambient	PDFN5*6	R_{thJA}			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}	$V_{GS}=0V, I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			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	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=0.25mA$	1.0	1.5	2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=100A$		0.8	1.0	mΩ
		$V_{GS}=4.5V, I_D=20A$		1.05	1.4	
Gate Resistance (Note 4)	R_G	$f=1MHz, \text{Open Drain}$	0.8	1.8	2.8	Ω
Dynamic Characteristics						
Input Capacitance (Note 4)	C_{ISS}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	5.1	7.2	9.3	nF
Output Capacitance (Note 4)	C_{OSS}		2.1	3.0	3.9	nF
Reverse Transfer Capacitance (Note 4)	C_{RSS}		150	550	950	pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, I_D=100A, R_G=1.6\Omega, V_{GS}=10V$		12		ns
Rise Time	t_r			9		
Turn-off Delay Time	$t_{d(off)}$			50		
Fall Time	t_f			9		
Gate Charge Characteristics						
Gate to Source Charge	Q_{gs}	$V_{DD}=15V, I_D=100A, V_{GS}=0 \text{ to } 10V$		17		nC
Gate to Drain Charge	Q_{gd}			16		
Gate Charge Total (Note 4)	Q_g			90	135	
Gate Plateau Voltage	$V_{plateau}$			2.8		V
Reverse Diode Characteristics						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=100A$		0.86	1.1	V
Reverse Recovery Time (Note 4)	t_{rr}	$V_R=15V, I_F=100A, dI_F/dt=100A/\mu s$		55	110	ns
Reverse Recovery Charge (Note 4)	Q_{rr}			70	140	nC
Peak Reverse Recovery Current (Note 4)	I_{rrm}			2.5		A

Note:

4. Defined by design. Not subject to production test.



Sanrise Technology Limited Company

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