

General Description

The Sanrise SRC65R1K8E is a high voltage power MOSFET, fabricated using advanced super junction technology. The resulting device has extremely low on resistance, low gate charge and fast switching time, making it especially suitable for applications which require superior power density and outstanding efficiency.

The SRC65R1K8E break down voltage is 650V and it has a high rugged avalanche characteristic. The SRC65R1K8E is available in TO-251, TO-252 and TO-220F packages.

Features

- Ultra Low $R_{DS(ON)} = 1.8\Omega @ V_{GS} = 10V$.
- Fast switching capability
- Robust design with better EAS performance
- Non-automotive Qualified

Application

- High Voltage Application
- LED Lighting Power

Symbol

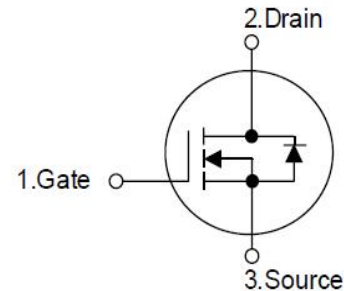


Figure 1 Symbol of SRC65R1K8E

Package Type

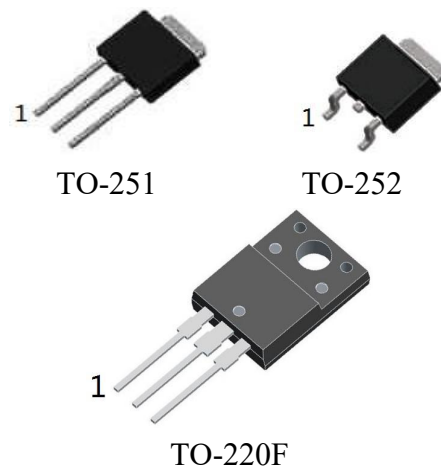
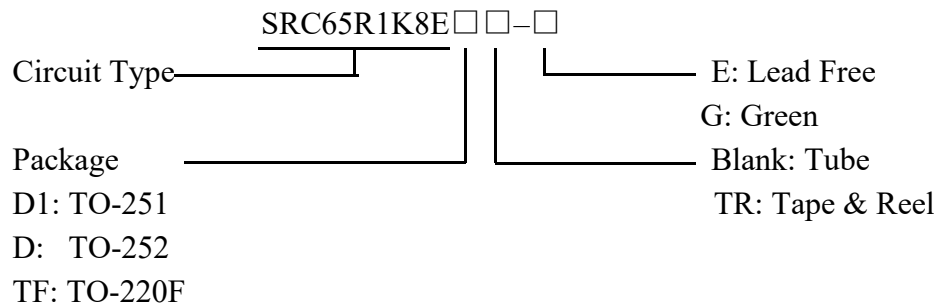


Figure 2 Package Types of SRC65R1K8E

Ordering Information



Package	Part Number	Marking ID	Packing Type
TO-251	SRC65R1K8ED1-G	SRC65R1K8ED1G	Tube
TO-252	SRC65R1K8EDTR-G	SRC65R1K8EDG	Tape & Reel
TO-220F	SRC65R1K8ETF-G	SRC65R1K8ETF	Tube

Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	650	V
Gate-Source Voltage		V_{GSS}	±20	V
Gate-Source Voltage (AC, $f > 1\text{Hz}$)		V_{GSS}	±30	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	2.7	A
	$T_C = 125^\circ\text{C}$		1.2	
Pulsed Drain Current (Note 2)		I_{DM}	8.1	A
Avalanche Energy, Single Pulse (Note 3)		E_{AS}	32	mJ
Avalanche Energy, Repetitive (Note 2)		E_{AR}	0.03	mJ
Avalanche Current, Repetitive (Note 2)		I_{AR}	0.1	A
Continuous Diode Forward Current		I_S	2.7	A
Diode Pulse Current		$I_{S,PULSE}$	8.1	A
Operating Junction Temperature		T_J	150	°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
- $I_{AS} = 0.1\text{A}$, $V_{DD} = 60\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics ^{NOTE1}						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	650			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	Forward	$I_{GSSF}, V_{GS}=20V, V_{DS}=0V$			100	nA
	Reverse	$I_{GSSR}, V_{GS}=-20V, V_{DS}=0V$			-1.0	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.7	3.5	4.3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1.3A$		1.5	1.8	Ω
Gate Resistance	R_G	$f=1MHz, \text{Open Drain}$		8		Ω
Dynamic Characteristics ^{NOTE2}						
Input Capacitance	C_{ISS}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		160		pF
Output Capacitance	C_{OSS}			9		pF
Reverse Transfer Capacitance	C_{RSS}			4		pF
Gate Charge Characteristics						
Gate to Source Charge	Q_{gs}	$V_{DD}=480V, I_D=1.3A, V_{GS}=0 \text{ to } 10V$		1.0		nC
Gate to Drain Charge	Q_{gd}			2.1		nC
Gate Charge Total	Q_g			4.3		nC
Gate Plateau Voltage	$V_{plateau}$			5.9		V
Reverse Diode Characteristics ^{NOTE2}						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=1.3A$		0.84	1.1	V



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