

**SSM3K333R**

Preliminary

Power MOSFET

**6A, 30V N-CHANNEL
POWER MOSFET**

■ DESCRIPTION

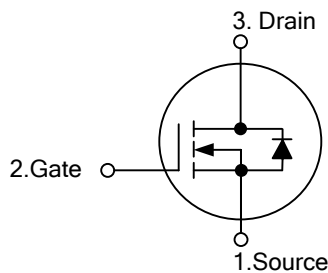
The UTC **SSM3K333R** is an N-channel power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

The UTC **SSM3K333R** is usually used in power management switching applications.

■ FEATURES

- * $R_{DS(ON)} < 42m\Omega$ @ $V_{GS}=4.5V$
- * $R_{DS(ON)} < 28m\Omega$ @ $V_{GS}=10V$
- * High switching speed
- * Low gate charge (Typ.=3.4nC)
- * Low C_{RSS} (Typ.=28pF)

■ SYMBOL



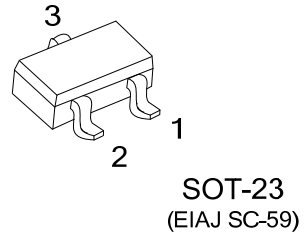
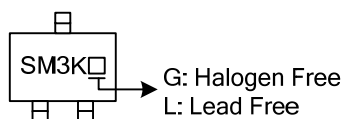
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
SSM3K333RL-AE3-R	SSM3K333RG-AE3-R	SOT-23	S	G	D	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

SSM3K333RL-AE3-R	(1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free, L: Lead Free
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■ MARKING



SOT-23
(EIAJ SC-59)

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D (Note 2)	6	A
	Pulsed	I_{DM} (Note 2)	12	A
Power Dissipation		P_D (Note 3)	1	W
	$t=10\text{s}$		2	W
Channel Temperature		T_{CH}	150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	$-55\sim+150$	$^{\circ}\text{C}$

Notes: 1. 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.

2. The channel temperature should not exceed 150°C during use.

3. Mounted on a FR4 board.(25.4mm×25.4mm×1.6mm, Cu Pad: 645mm²)

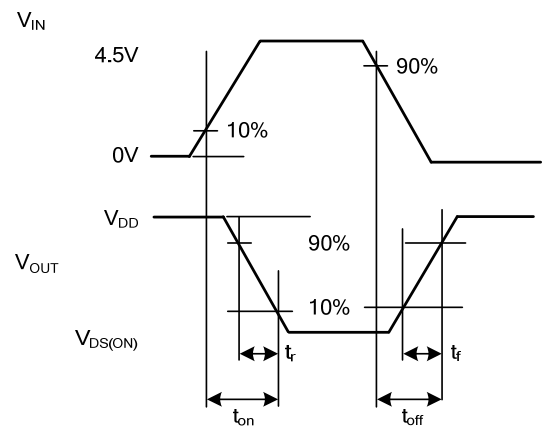
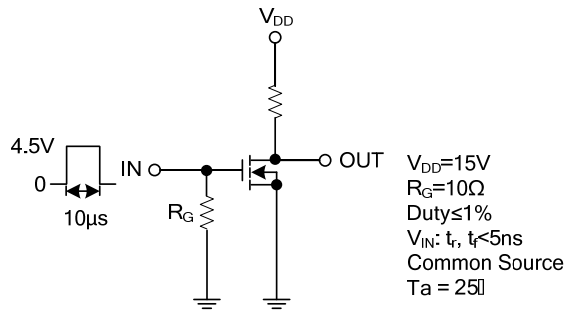
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =10mA, V _{GS} =0V	30			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} = V _{GS} , I _D =0.1mA	1.3		2.5	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =4.5V, I _D =3A (Note 2)		25.7	42	mΩ
			V _{GS} =10V, I _D =5A (Note 2)		18.7	28	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =15V, f=1.0MHz		436		pF
Output Capacitance		C _{OSS}			77		pF
Reverse Transfer Capacitance		C _{RSS}			28		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{GS} =4.5V, V _{DD} =15V, I _D =6A		3.4		nC
Gate to Source Charge		Q _{GS}			1.8		nC
Gate to Drain Charge		Q _{GD}			1.0		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =15V, I _D =3A, V _{GS} =0~4.5V,		12		ns
Turn-OFF Delay Time		t _{D(OFF)}	R _G =10Ω		9		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V _{SD}	I _{SD} =6A, V _{GS} =0V		0.85	1.2	V

Notes: 1. The channel temperature should not exceed 150°C during use.

2. Pulse test

■ TEST CIRCUITS AND WAVEFORMS



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