N-ChannelEnhancementModePowerMOSFET

RC3134KM3

● Features

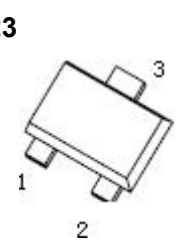
V_{DS}= 20V
I_D= 1.4A
$R_{DS(ON)}$≤ 230mΩ(V_{GS}=4.5V)

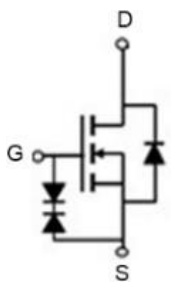
● General Description

The RC3134KM3 is N-Channel enhancement MOSFET Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ .with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

● Pin Configurations

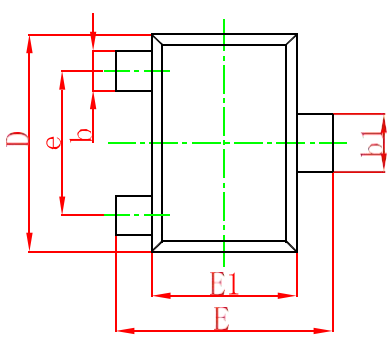
SOT-723

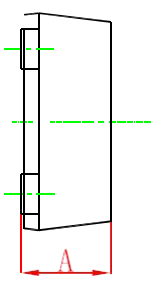


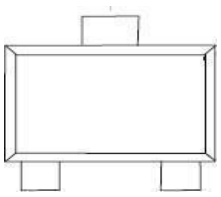


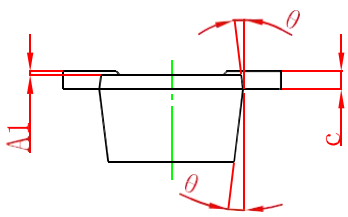
1. GATE
2. SOURCE
3. DRAIN

● Package Information



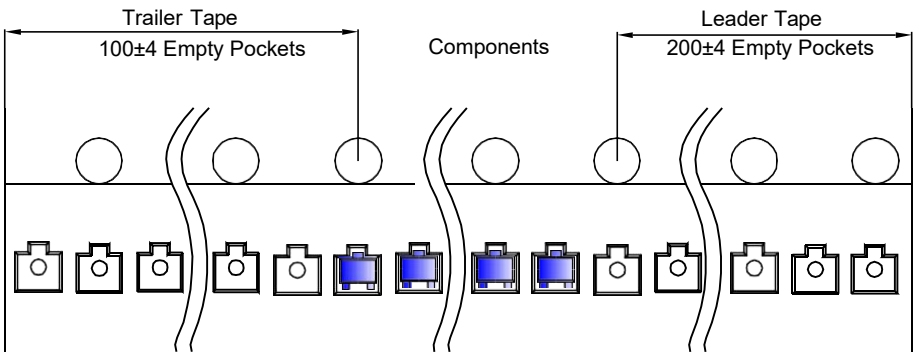






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

SOT-723 Tape Leader and Trailer



REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
8000 pcs	7 inch	80,000 pcs	203×203×195	320,000 pcs	438×438×220	

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- **Absolute Maximum Ratings (@T_J=25°C unless otherwise noted)**

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate Source Voltage		V_{GSS}	±8	V
Drain Current (Continuous) *AC	T_A=25°C	I_D	1.4	A
	T_A=70°C		1.1	
Drain Current (Pulse) *B		I_{DM}	3.5	A
Diode Continuous Forward Current		I_S	0.6	A
Power Dissipation	T_A=25°C	P_D	0.7	W
	T_A=70°C		0.4	
Maximum Junction Temperature		T_J	150	°C
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	°C

- **Thermal Characteristics**

Parameter	Symbol	Ratings	Unit
Thermal Resistance ,Junction-to-Ambient *B	$R_{\theta JA}$	180	°C/W

- **Electrical Characteristics (@T_J=25°C unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V，I_D=250uA	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V，V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}，I_{DS}=250uA	0.5	--	1.0	V
Gate Leakage Current	I_{GSS}	V_{GS}=±8V，V_{DS}=0V	--	--	±10	uA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS}=4.5V，I_D=0.55A	--	190	230	mΩ
		V_{GS}=2.5V，I_D=0.45A	--	234	305	mΩ
		V_{GS}=1.8V，I_D=0.35A	--	303	455	mΩ
Forward Transconductance	gfs	V_{DS}=5V，I_D=0.55A	--	1.7	--	S
Total Gate Charge	Q_g	V_{GS}=2.5V，V_{DS}=10V，I_D=1A	--	1.1	--	nC
Total Gate Charge	Q_g	V_{GS}=4.5V，V_{DS}=10V，I_D=1A	--	2	--	nC
Gate- Source Charge	Q_{gs}		--	0.3	--	nC
Gate- Drain Charge	Q_{gd}		--	0.3	--	nC
Tum-on Delay Time	$t_{d(on)}$	V_{GS}=4.5V，V_{DS}=10V，R_{GEN}=6Ω，I_D=2A	--	1.2	--	ns
Turn-on Rise Time	t_r		--	25	--	ns
Turn-off Delay Time	$t_{d(off)}$		--	14	--	ns
Turn-off Fall Time	t_f		--	15	--	ns
Input Capacitance	C_{iss}	V_{GS}=0V，V_{DS}=10V，f=1MHZ	--	43	--	pF
Output Capacitance	C_{oss}		--	9	--	pF
Reverse Transfer Capacitance	C_{rss}		--	6	--	pF

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- **Reverse Diode Characteristics (@T_J=25°C unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	V_{SD}	I_{SD}=0.35A，V_{GS}=0V	--	--	1.1	V
Reverse Recovery Time	t_{rr}	I_F = 1A di/dt = 100 A/μs	--	9	--	nS
Reverse Recovery Charge	Q_{rr}		--	1	--	nC

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR- 4 board with 2oz. Copper, in a still air environment with TA=25C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature .

C: The current rating is based on the t<10s junction to ambient thermal resistance rating.

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● TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

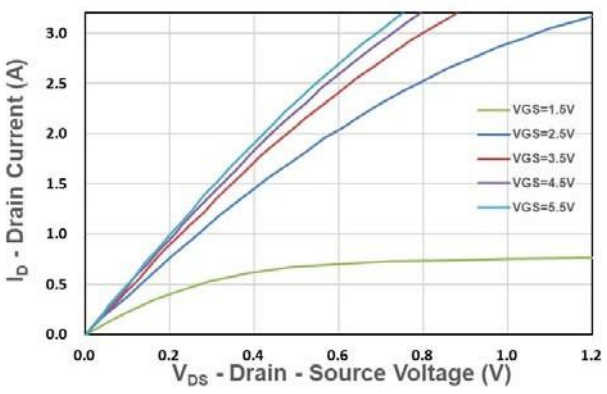

Figure 1. Output Characteristics

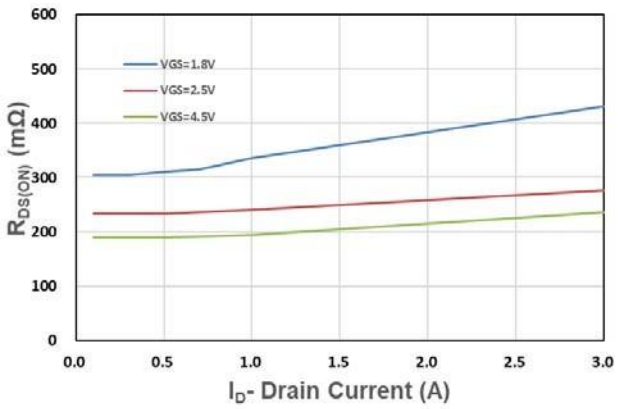

Figure 2. On−Resistance vs. I

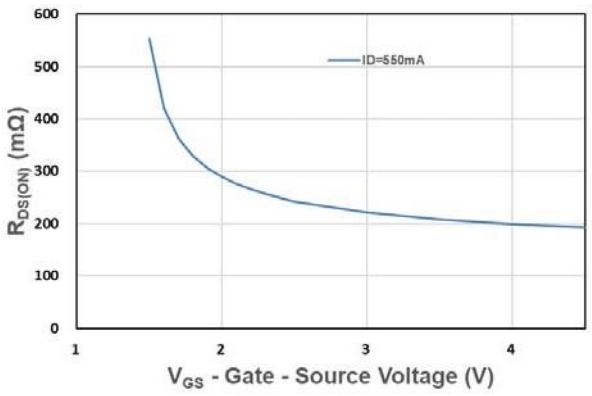

Figure 3. On−Resistance vs. V_{GS}

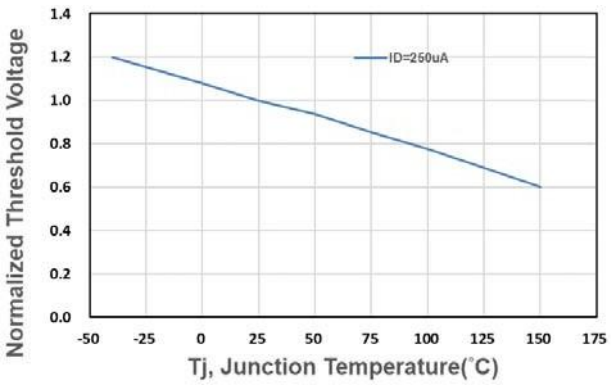

Figure 4. Gate Threshold Voltage

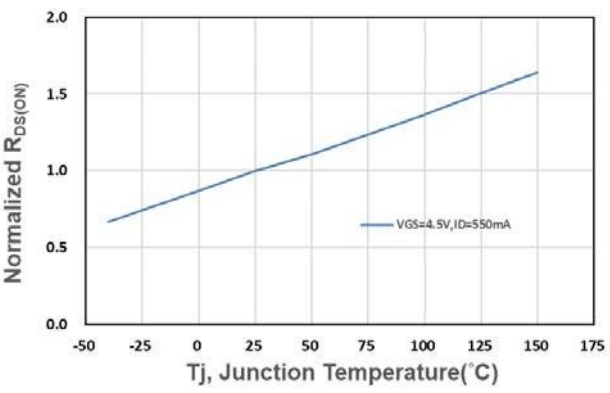

Figure 5. Drain-Source On Resistance

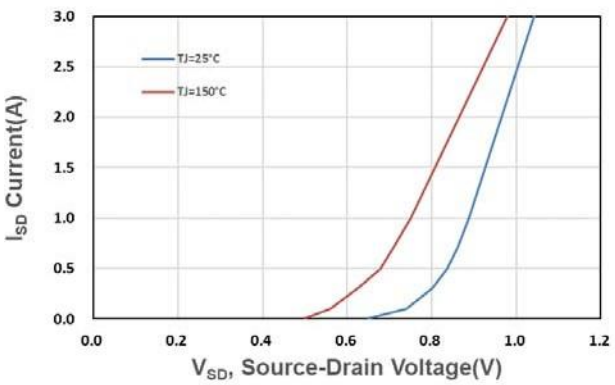

Figure 6. Source-Drain Diode Forward

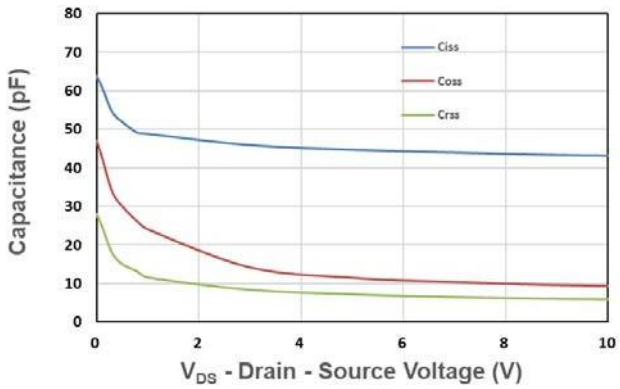

Figure 7. Capacitance

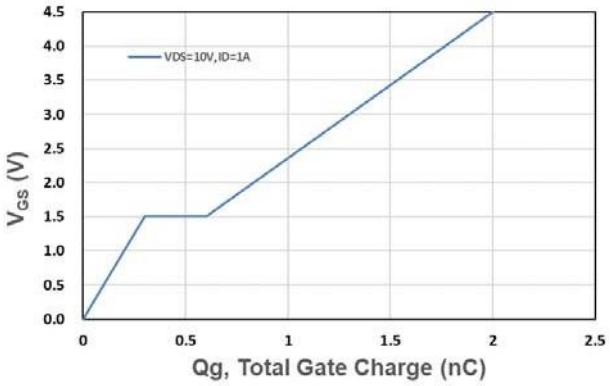

Figure 8. Gate Charge Characteristics

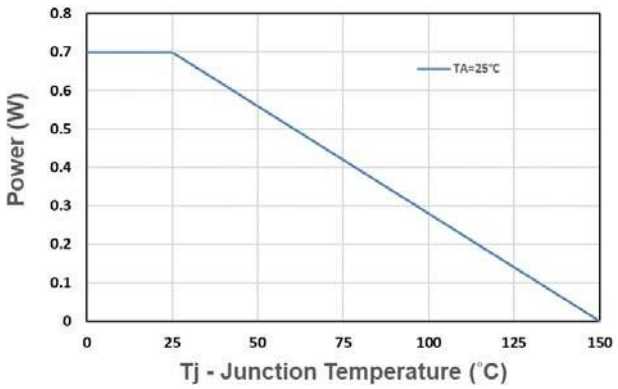

Figure 9. Power Dissipation

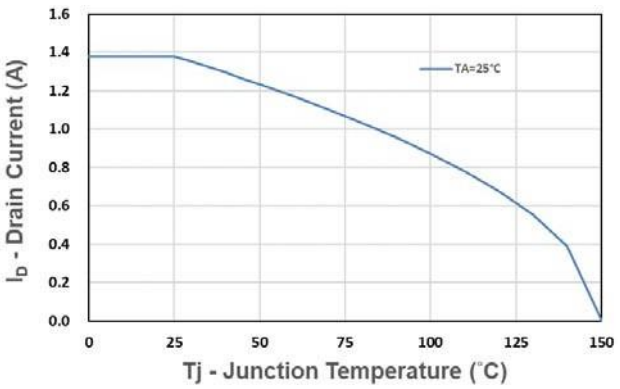

Figure 10. Drain Current

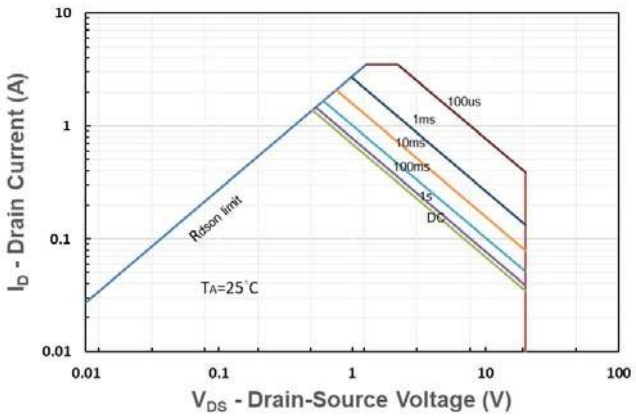

Figure 11. Safe Operating Area

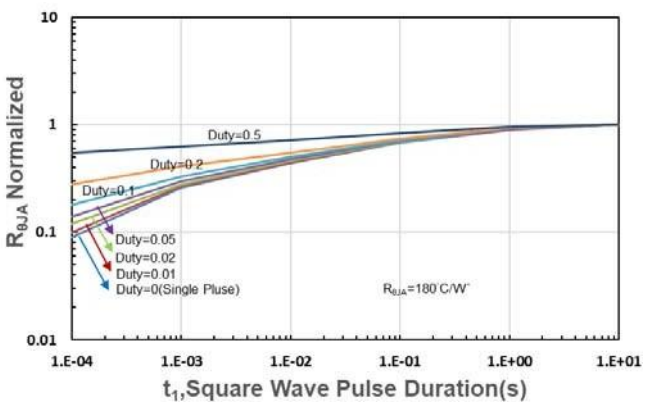

Figure 12. $R_{\theta JA}$ Transient Thermal Impedance