

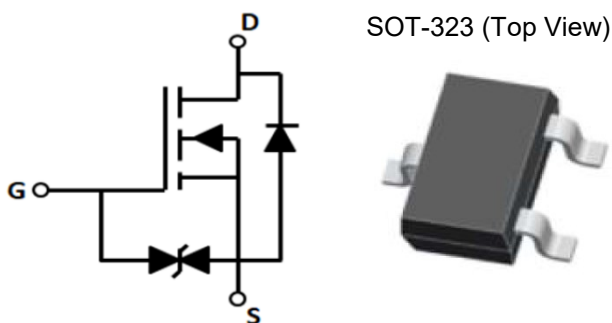
## Description

CM3134BE is the N-Channel enhancement mode power field effect transistors with high cell density, trench technology. This high density process and design have been optimized switching performance and especially tailored to minimize on-state resistance.

## Features

- $V_{DS}$ : 20V
- $I_D$ : 0.9A
- $R_{DS(on)}$  (@ $V_{GS}=4.5V$ ) : < 250m $\Omega$
- $R_{DS(on)}$  (@ $V_{GS}=2.5V$ ) : < 350m $\Omega$
- High density cell design for extremely low  $R_{DS(on)}$
- Excellent on-resistance and DC current capability

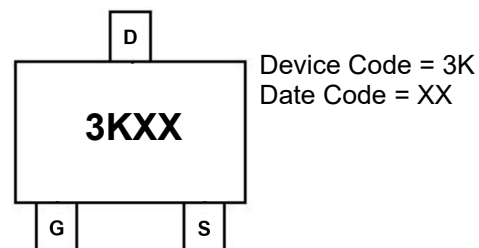
## Equivalent Circuit and Pin Configuration



## Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Portable Instrumentation
- Load switch

## Marking Information



## Ordering Information

Part Number	Packaging	Reel Size
CM3134BE	3000/Tape & Reel	7 inch

## Absolute Maximum Ratings (TA=25 °C unless otherwise noted)

Parameter		Symbol	Maximum	Unit
Drain-source Voltage		$V_{DS}$	20	V
Gate-source Voltage		$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$T_A=25^\circ\text{C}$ , Steady State	$I_D$	0.9	A
	$T_A=75^\circ\text{C}$ , Steady State		0.69	A
	$T_A=25^\circ\text{C}$ , $t \leq 5s$		1	A
Pulsed Drain Current <sup>(1)</sup>		$I_{DM}$	3.0	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$ <sup>(2)</sup>	Steady State	$P_D$	340	mW
	$t \leq 5s$		430	
Thermal Resistance Junction-to-Ambient <sup>(2)</sup> @Steady State		$R_{\theta JA}$	366	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Ambient <sup>(2)</sup> @ $t \leq 5s$			294	
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics (T<sub>J</sub>=25 °C unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, T <sub>C</sub> =25°C			1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V			±10	uA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.35	0.75	1.1	V
Static Drain-Source on-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A		170	250	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.3A		210	350	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =0.9A, V <sub>GS</sub> =0V			1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				0.9	A
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> =0V, f=1MHz		27		pF
Output Capacitance	C <sub>oss</sub>			7.6		
Reverse Transfer Capacitance	C <sub>rss</sub>			4.8		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V, I <sub>D</sub> =0.5A		5.1		nC
Gate Source Charge	Q <sub>gs</sub>			1.2		
Gate Drain Charge	Q <sub>gd</sub>			0.3		
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DD</sub> =10V, I <sub>D</sub> =0.5A, R <sub>GEN</sub> =10Ω		6.7		ns
Turn-on Rise Time	t <sub>r</sub>			3.2		
Turn-off Delay Time	t <sub>D(off)</sub>			7.4		
Turn-off Fall Time	t <sub>f</sub>			2.8		

Noted: (1) Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

(2) Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 6cm<sup>2</sup>.

**Typical Performance Characteristics**

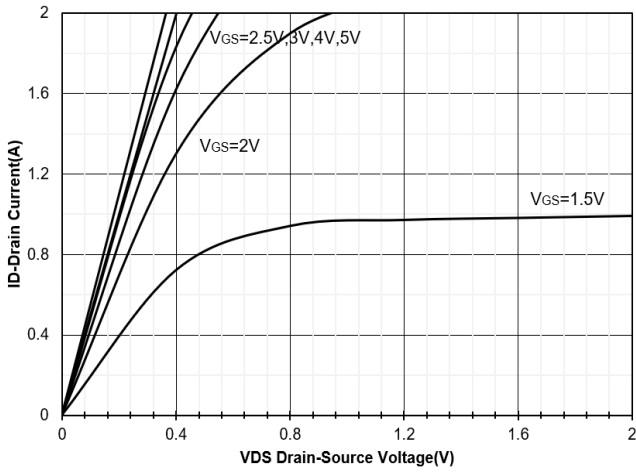


Figure 1. Output Characteristics

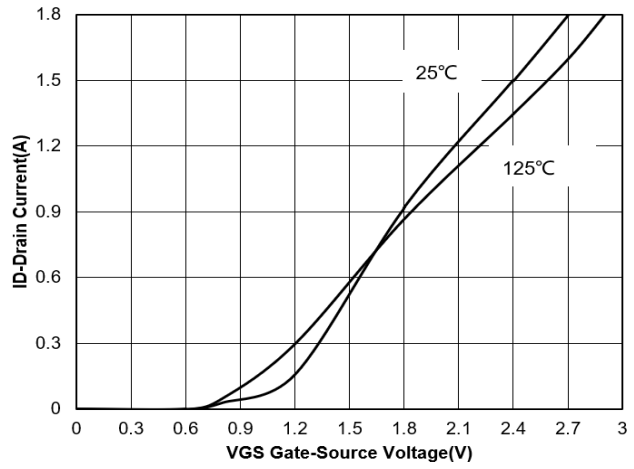


Figure 2. Transfer Characteristics

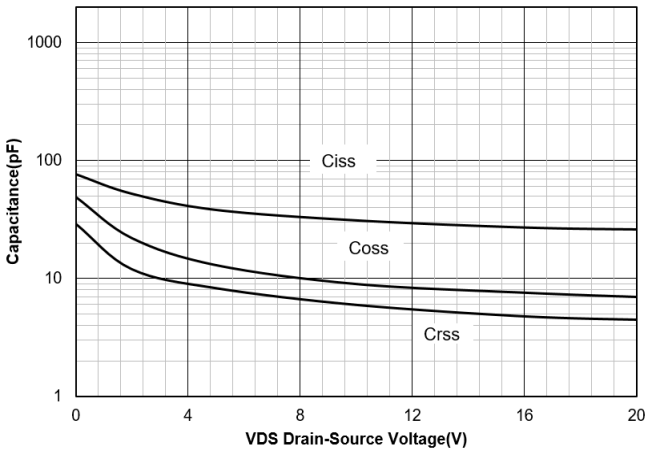


Figure 3. Capacitance Characteristics

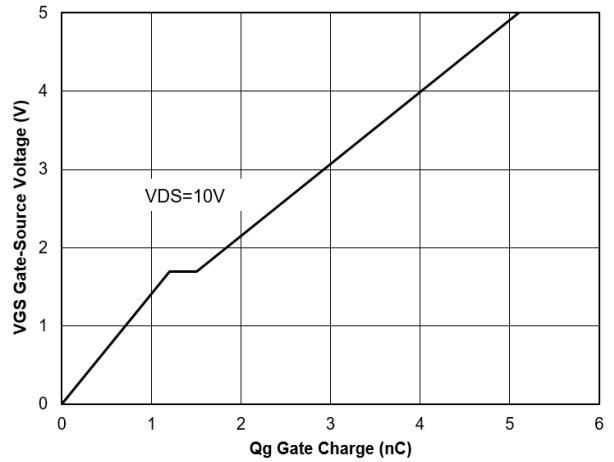


Figure 4. Gate Charge

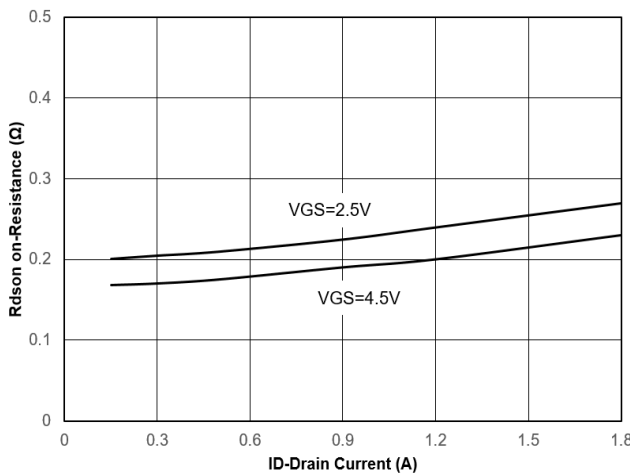


Figure 5. Drain-Source on Resistance

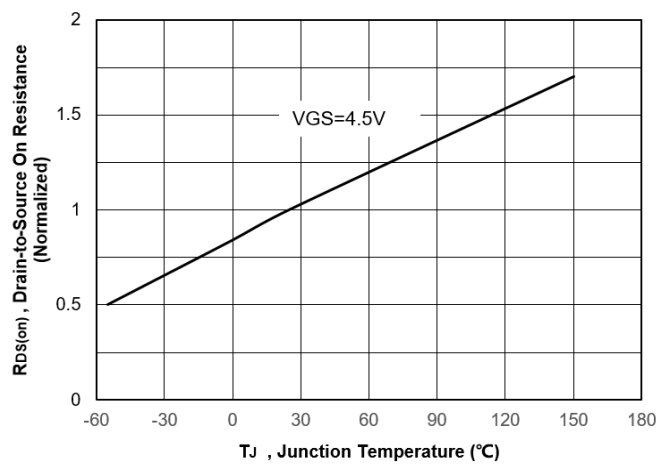


Figure 6. Normalized On-Resistance Vs. Temperature

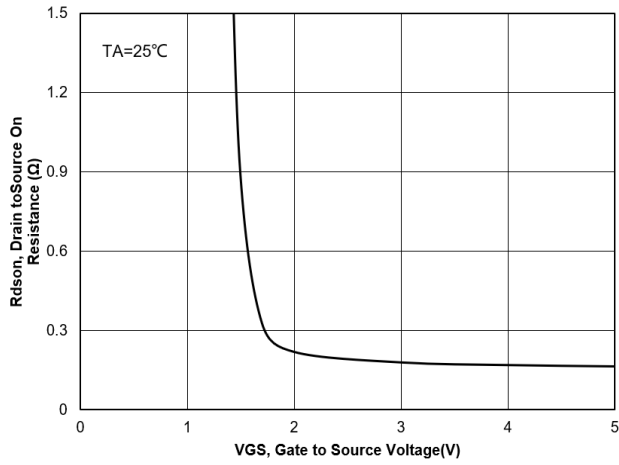


Figure 7. Typical Drain to Source ON Resistance VS Gate Voltage and Drain Current

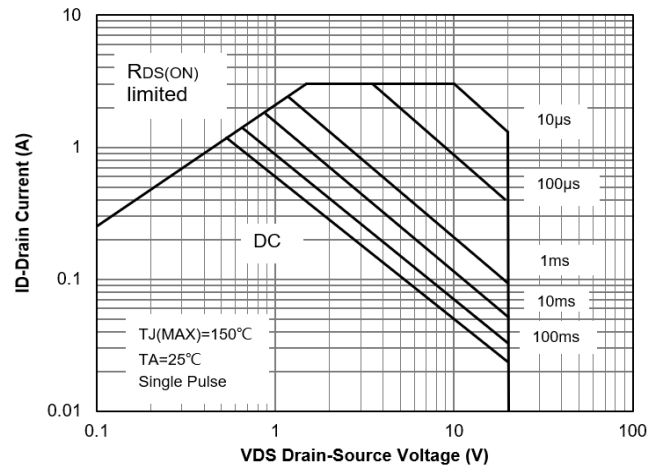


Figure 8. Safe Operation Area

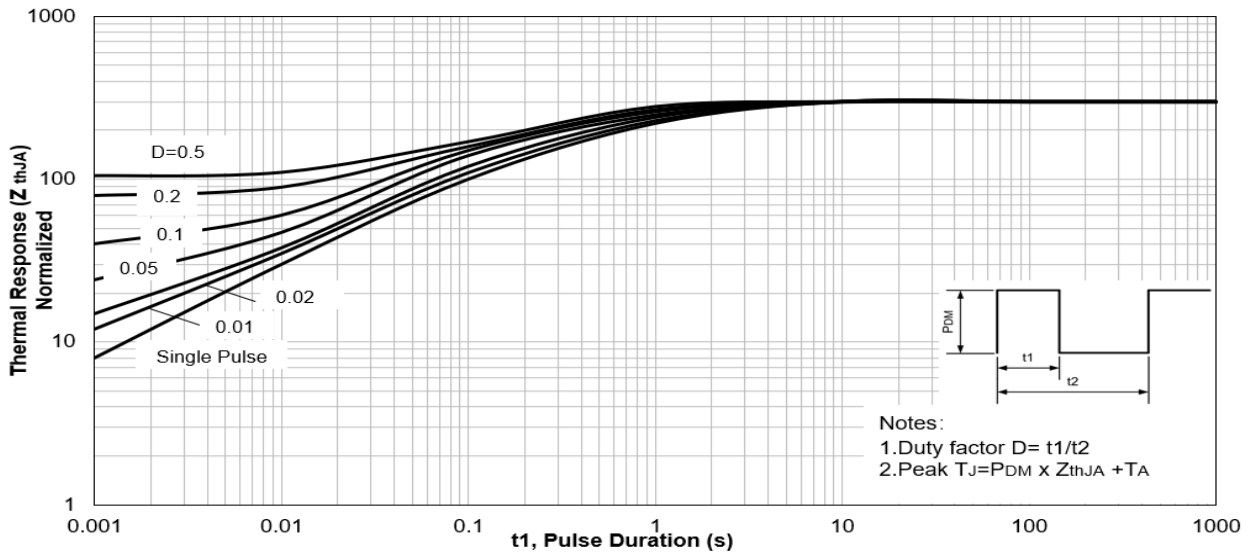


Figure 9. Maximum Effective Transient Thermal Impedance ,Junction-to-Ambient

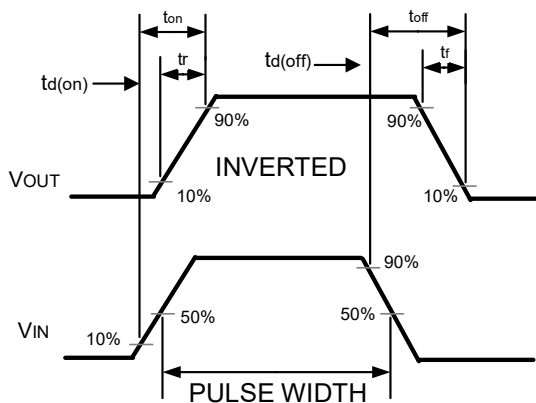
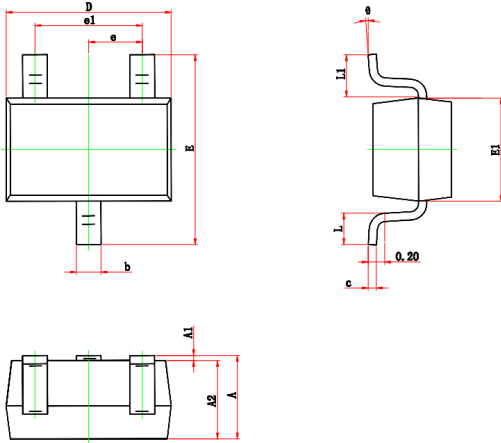


Figure 10. Switching wave

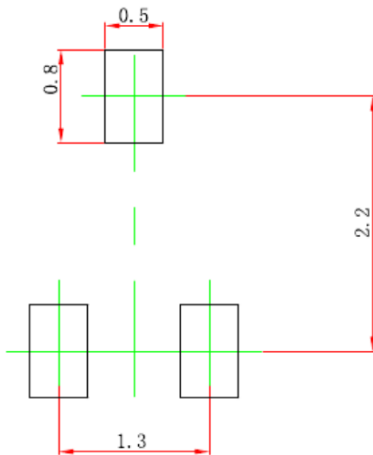
### SOT-323 Package Outline Drawing

(Unit : mm)



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.10	0.035	--	0.043
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.00	0.035	--	0.039
b	0.20	--	0.40	0.008	--	0.016
c	0.08	--	0.15	0.003	--	0.006
D	2.00	--	2.20	0.079	--	0.087
E	2.15	--	2.45	0.085	--	0.096
E1	1.15	--	1.35	0.045	--	0.053
e	0.65 TYP			0.026 TYP		
e1	1.20	--	1.40	0.047	--	0.055
L	0.26	--	0.46	0.010	--	0.018
L1	0.525 REF			0.021 REF		
Θ	0°	--	8°	0°	--	8°

### Suggested Land Pattern



### Contact Information

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