

# KA78RM33 Low Dropout Voltage Regulator

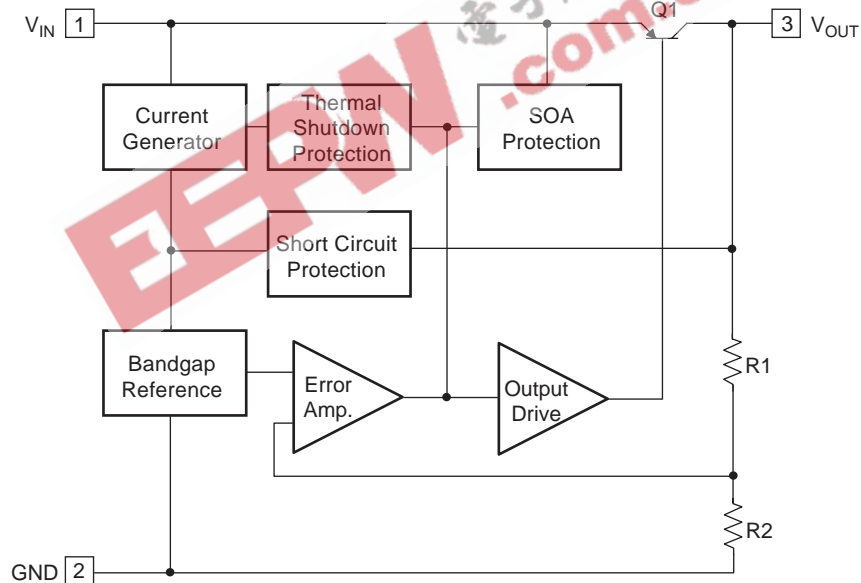
## Features

- 0.5A/3.3V Output Low Dropout Voltage Regulator
- Low Dropout Voltage (Max. 0.6V)
- Over Current Protection, Thermal Shutdown
- SOA Protection, Short Circuit Protection

## Description

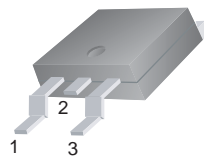
The KA78RM33 is a low-dropout voltage regulator suitable for various electronic equipments. It provides constant voltage power source with surface mount type package (D-PAK). The dropout voltage of KA78RM33 is below 0.6V in full rated current(0.5A). This regulator has various functions such as an over current protection, a thermal shut down and the SOA (Safe operating Area) protection.

## Internal Block Diagram

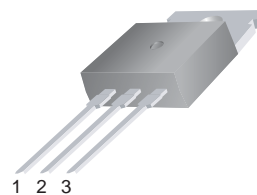


## Packages

**D-PAK**



**TO-220**



1.  $V_{IN}$  2. GND 3.  $V_{OUT}$

### Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Remark
Input Voltage	$V_{IN}$	20	V	–
Output Current	$I_O$	0.5	A	–
Thermal Resistance Junction-Air	$R_{\theta JA}$	110	°C/W	No Heatsink
Power Dissipation	$P_d$	Internally limited	–	–
Junction Temperature	$T_j$	150	°C	–
Operating Temperature	$T_{OPR}$	-25 to +125	°C	–

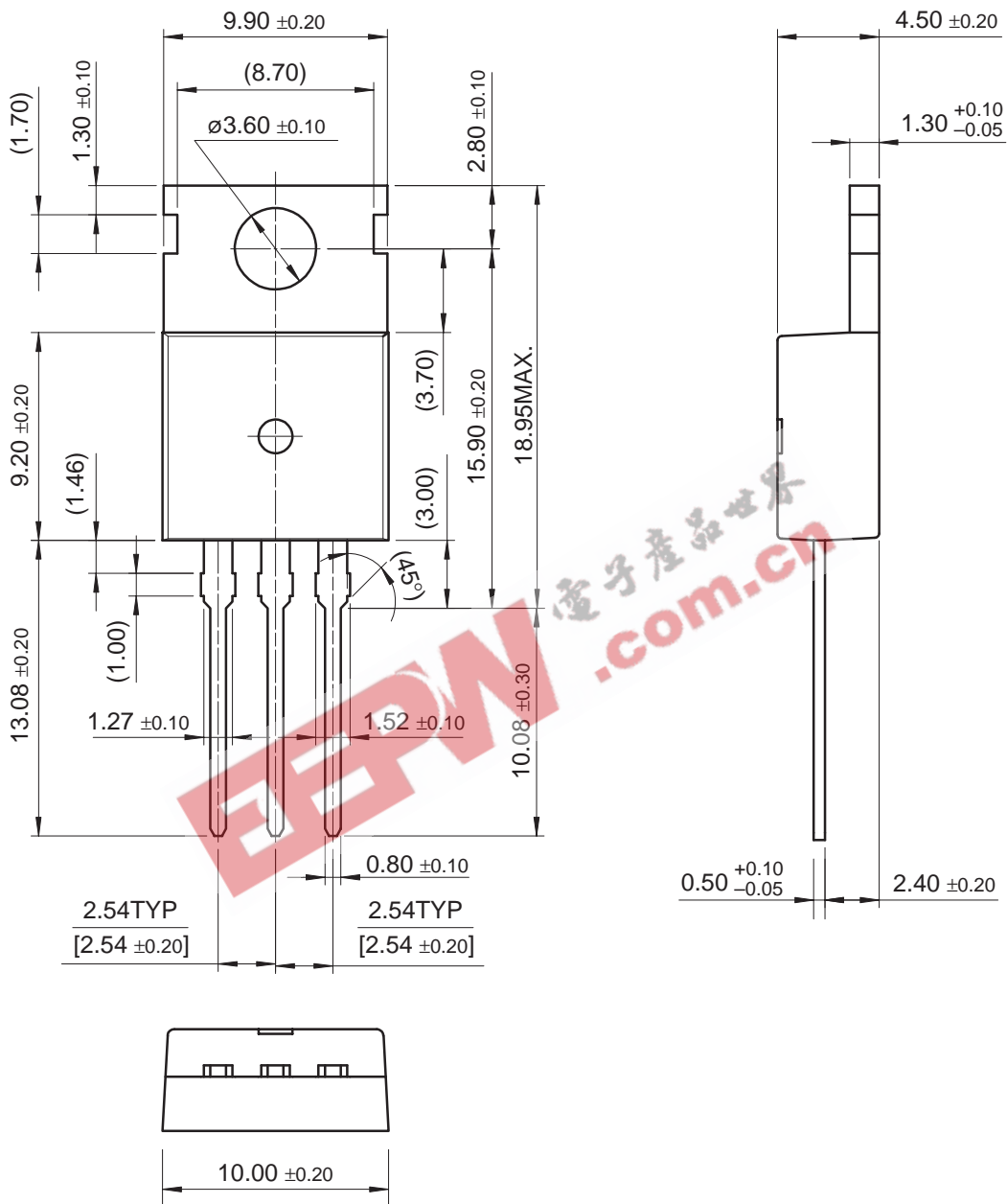
### Electrical Characteristics

( $V_{IN} = 5V$ ,  $I_O = 0.25A$ ,  $T_A = 25^\circ C$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	$V_{OUT}$	$I_O = 10mA$	3.22	3.3	3.38	V
Load Regulation	$R_{LOAD}$	$5mA < I_O < 0.5A$	–	2	20	mV
Line Regulation	$R_{LINE}$	$4.3V < V_{IN} < 16V$	–	2	20	mV
Ripple Rejection Ratio	RR	$f = 120Hz$ , $V_{IN} = 5V \pm 0.5V_{rms}$	55	–	–	dB
Dropout Voltage	$V_{drop}$	$I_O = 0.5A$	–	–	0.6	V
Quiescent Current	$I_q$	$I_O = 0A$	–	5	10	mA
Peak Current	$I_{PK}$	$V_{IN} = 5V$	0.5	1	–	A
Output Noise Voltage	$V_n$	$10Hz < f < 100kHz$	–	50	–	$\mu V_{rms}$
Temperature Coefficient of Output Voltage	$\Delta V_{OUT}/\Delta T$	$-25^\circ C < T_j < 125^\circ C$ , $I_O = 100mA$	–	-0.2	–	$mV/^\circ C$

### Mechanical Dimensions

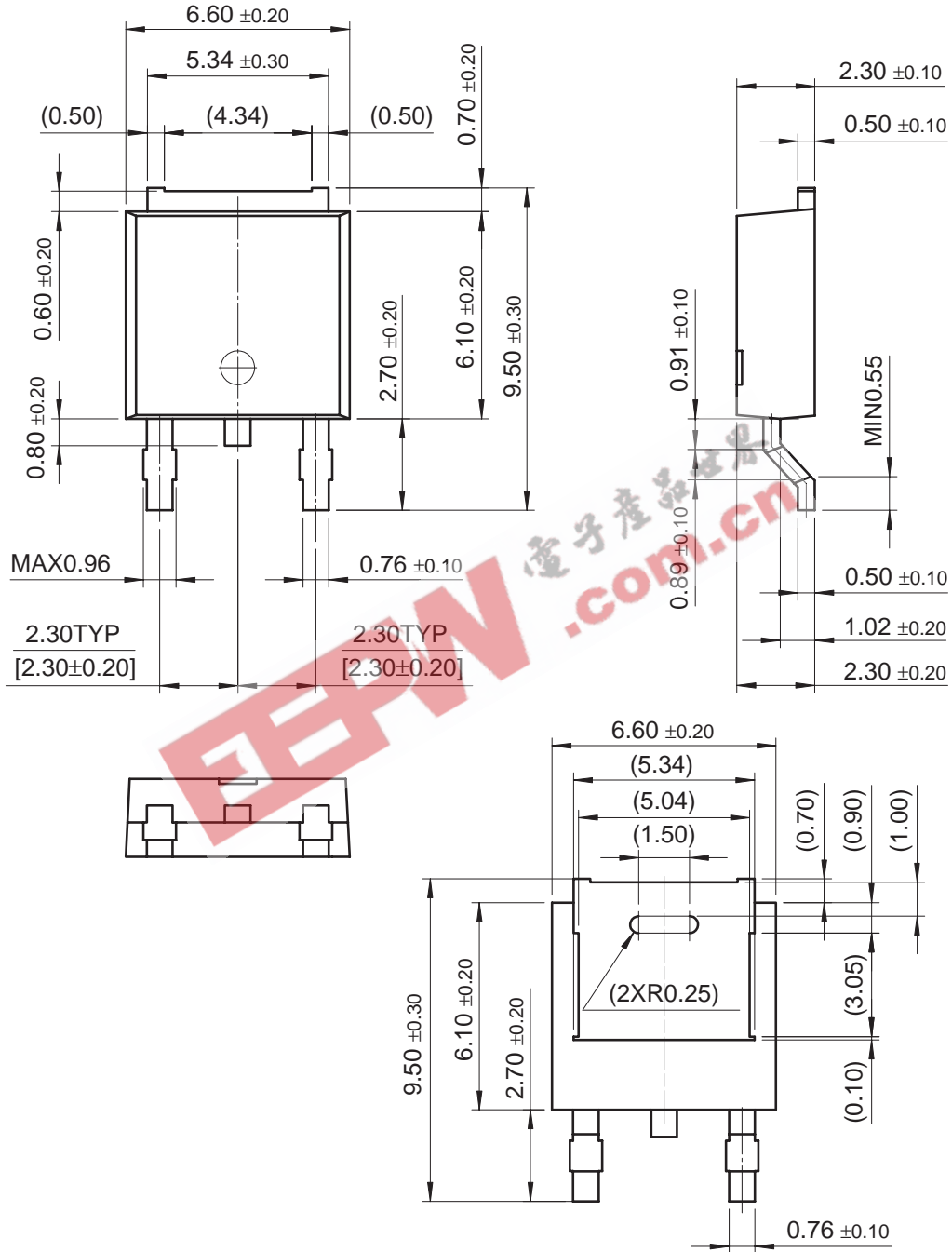
#### TO-220 Package



Dimensions in millimeters

**Mechanical Dimensions** (Continued)

**D-PAK Package**



Dimensions in millimeters

### Ordering Information

Product Number	Package	Packing	Operating Temperature
KA78RM33	TO-220	Bulk	-25°C to +125°C
KA78RM33TU		Rail	
KA78RM33TSTU		Rail (Short Leads)	
KA78RM33RTF	D-PAK	Tape & Reel (2K/reel)	
KA78RM33RTM		Tape & Reel (2.5K/reel)	

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EnSigna™	ImpliedDisconnect™	OCXPro™	ScalarPump™	UniFET™
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FACT Quiet Series™		OPTOPLANAR™	SMART START™	Wire™
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