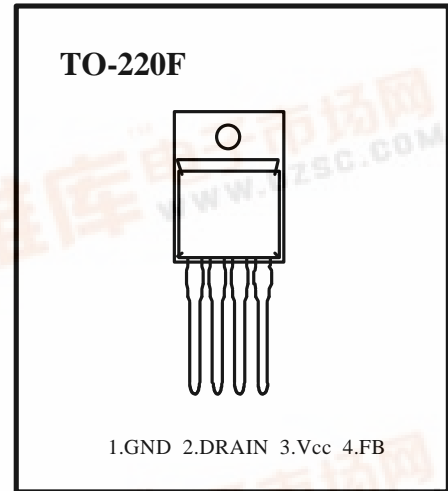


# KA1M0380

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## FEATURES

- Precision fixed operating frequency (70KHz)
- Pulse by pulse over current limiting
- Over load protection
- Internal thermal shutdown function
- Under voltage lockout
- Internal high voltage sense FET
- Low start up current ( $\leq 0.4\text{mA}$ )



## PRODUCT SUMMARY

Part Number	BVdss	Rds(on)	Id
KA1M0380	800V	5 Ω	3A

## ABSOLUTE MAXIMUM RATINGS ( Ta = 25 °C , unless otherwise specified )

Characteristics	Symbol	Value	Unit
Drain - Source(GND) Voltage (1)	V <sub>DSS</sub>	800	V
Drain - Gate Voltage (R <sub>s</sub> = 1MΩ) (1)	V <sub>DGR</sub>	800	V
Gate - Source(GND) Voltage	V <sub>GS</sub>	±30	V
Rise Time (2)	Tr	95	ns
Fall Time (2)	Tf	60	ns
Drain-Source Off State Leakage Current ( V <sub>ds</sub> = 0V, V <sub>gs</sub> = 0V )	I <sub>DSS</sub>	250	uA
Continuous Drain Current (Tc = 25°C)	I <sub>D</sub>	3.0	ADC
Supply Voltage	V <sub>CC</sub>	30	V
Analog Input Voltage Range	V <sub>FB</sub>	-0.3 ~ V <sub>SD</sub>	V
Total Power Dissipation	PD ( wt H/S)	20	W
	Derating	0.28	W/ °C
Operating Temperature	T <sub>OPR</sub>	- 25 ~ + 85	°C
Storage Temperature	T <sub>STG</sub>	- 55 ~ + 150	°C

Notes: (1) T<sub>J</sub> = 25°C to 150°C  
 (2) V<sub>DD</sub> = 400V, I<sub>D</sub> = Max. Rating, V<sub>GS</sub> = 10V

**ELECTRICAL CHARACTERISTICS ( Control part )**

( Ta = 25°C unless otherwise specified )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
<b>REFERENCE SECTION</b>						
Vref	Output Voltage	4.80	5.00	5.20	V	Ta = 25 °C
Vref/ ΔT	Temperature Stability	-	0.3	0.6	mV/ °C	-25°C ≤ Ta ≤ +85°C Note1
<b>OSCILLATOR SECTION</b>						
FOSC	Initial Accuracy	62	67	72	KHz	Ta = 25 °C
ΔF / ΔT	Frequency Change with Temperature		±5	±10	%	-25°C ≤ Ta ≤ +85°C
<b>PWM SECTION</b>						
DMAX	Maximum Duty Cycle	62	67	72	%	
<b>FEEDBACK SECTION</b>						
IFB	Feedback Source Current		1		mA	Ta = 25 °C , Vfb = 0
Idelay	Shutdown Delay Current		5		uA	5 V ≤ Vfb ≤ VSD
<b>OVER CURRENT PROTECTION SECTION</b>						
IL(MAX)	Over Current Protection	1.5	1.8	2.2	A	Max. Inductor Current
<b>UVLO SECTION</b>						
Vth(H)	Start Threshold Voltage	14	15	16	V	
Vth(L)	Minimum Operating Voltage	9	10	11	V	After turn on

**ELECTRICAL CHARACTERISTICS ( Continued)**

( Ta = 25°C unless otherwise specified )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
<b>TOTAL STANDBY CURRENT SECTION</b>						
IST	Start up Current		0.25	0.4	mA	V <sub>CC</sub> = 14V
IOPR	Operating Supply Current ( control part only )		15	18	mA	Ta = 25°C ,
VZ	V <sub>CC</sub> Zener Voltage	30	32.5	35	V	I <sub>CC</sub> = 20mA
<b>SHUTDOWN SECTION</b>						
VSD	Shutdown Feedback Voltage	7	7.6	8.2	V	
TSD	ThermalShutdownTemperature(Tj)		150		°C	Note 1

- Notes:** (1) These parameters, although guaranteed, are not 100% tested in production  
(2) In output section, the design target is the maximum current after current clamping  
(3) These parameters, although guaranteed, are tested in EDS(wafer test) process.

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FACT™	QS™	
FACT Quiet Series™	Quiet Series™	
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FASTr™	SuperSOT™-6	
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## PRODUCT STATUS DEFINITIONS

### Definition of Terms

Datasheet Identification	Product Status	Definition
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