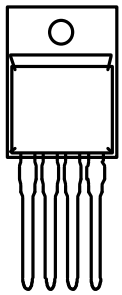
KA1M0380

S P S

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 (≤0.4mA)

TO-220F



1.GND 2.DRAIN 3.Vcc 4.FB

PRODUCT SUMMARY

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

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

Characteristics	Symbol	Value	Unit
Drain - Source(GND) Voltage (1)	V_{DSS}	800	V
Drain - Gate Voltage (R_{GS} =1MΩ) (1)	V_{DGR}	800	V
Gate - Source(GND) Voltage	V_{GS}	±30	V
Rise Time (2)	Tr	95	ns
Fall Time (2)	Tf	60	ns
Drain-Sourse Off State Leakage Current (Vds = 0V, Vgs = 0V)	I_{DSS}	250	uA
Continuous Drain Current (Tc = 25°C)	I_D	3.0	A_{DC}
Supply Voltage	V_{CC}	30	V
Analog Input Voltage Range	V_{FB}	-0.3 ~ V_{SD}	V
Total Power Dissipation	P_D (wt H/S)	20	W
	Derating	0.28	W/ °C
Operating Temperature	T_{OPR}	- 25 ~ + 85	°C
Storage Temperature	T_{STG}	- 55 ~ + 150	°C

Notes: (1) T_J = 25°C to 150°C
(2) V_{DD} = 400V, I_D = Max. Rating, V_{GS} = 10V

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ELECTRICAL CHARACTERISTICS (Control part)

(Ta = 25°C unless otherwise specified)

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
REFERENCE SECTION						
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
OSCILLATOR SECTION						
FOSC	Initial Accuracy	62	67	72	KHz	Ta = 25 °C
ΔF / ΔT	Frequency Change with Temperature		±5	±10	%	-25°C ≤ Ta ≤ +85°C
PWM SECTION						
DMAX	Maximum Duty Cycle	62	67	72	%	
FEEDBACK SECTION						
I FB	Feedback Source Current		1		mA	Ta = 25 °C , Vfb = 0
Idelay	Shutdown Delay Current		5		uA	5 V ≤ Vfb ≤ VSD
OVER CURRENT PROTECTION SECTION						
IL(MAX)	Over Current Protection	1.5	1.8	2.2	A	Max. Inductor Current
UVLO SECTION						
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
TOTAL STANDBY CURRENT SECTION						
I_{ST}	Start up Current		0.25	0.4	mA	V_{CC} = 14V
I_{OPR}	Operating Supply Current (control part only)		15	18	mA	Ta = 25 °C ,
V_Z	Vcc Zener Voltage	30	32.5	35	V	I_{CC} = 20mA
SHUTDOWN SECTION						
V_{SD}	Shutdown Feedback Voltage	7	7.6	8.2	V	
T_{SD}	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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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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