

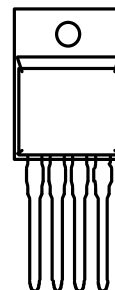
FEATURES

- 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
KA1M0280R	800V	7 Ω	2A

TO-220F



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

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$, unless otherwise specified)

Characteristics	Symbol	Value	Unit
Drain - Source(GND) Voltage (1)	V _{DSS}	800	V
Drain - Gate Voltage ($R_s = 1\text{M}\Omega$) (1)	V _{DGR}	800	V
Gate - Source(GND) Voltage	V _{GS}	± 30	V
Rise Time (2)	T _r	28	ns
Fall Time (2)	T _f	24	ns
Drain-Source Off State Leakage Current ($V_{ds} = 0\text{V}$, $V_{gs} = 0\text{V}$)	I _{DSS}	250	μA
Continuous Drain Current ($T_c = 25^\circ\text{C}$)	I _D	2.0	A _{DC}
Supply Voltage	V _{CC}	30	V
Analog Input Voltage Range	V _{FB}	$-0.3 \sim V_{SD}$	V
Total Power Dissipation	P _D (wt H/S)	15	W
	Derating	0.20	W/ $^\circ\text{C}$
Operating Temperature	T _{OPR}	$-25 \sim +85$	$^\circ\text{C}$
Storage Temperature	T _{STG}	$-55 \sim +150$	$^\circ\text{C}$

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

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	5V ≤ Vfb ≤ VSD
OVER CURRENT PROTECTION SECTION						
IL(MAX)	Over Current Protection	0.96	1.2	1.44	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	V _{CC} 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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