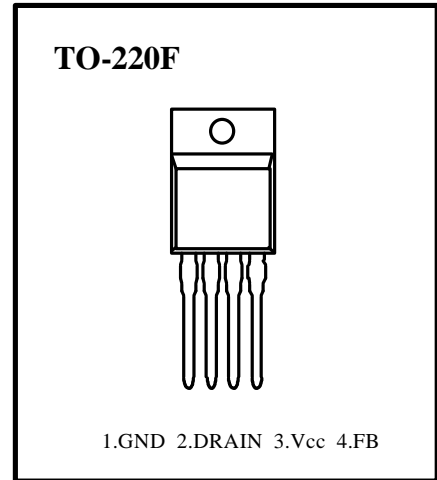


## FEATURES

- 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 $\Omega$	2A

## 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>gs</sub> = 1M $\Omega$ ) (1)	V <sub>DGR</sub>	800	V
Gate - Source(GND) Voltage	V <sub>GS</sub>	$\pm 30$	V
Rise Time (2)	T <sub>r</sub>	28	ns
Fall Time (2)	T <sub>f</sub>	24	ns
Drain-Source Off State Leakage Current ( V <sub>ds</sub> = 0V, V <sub>gs</sub> = 0V )	I <sub>DSS</sub>	250	$\mu\text{A}$
Continuous Drain Current (T <sub>c</sub> = 25°C)	I <sub>D</sub>	2.0	A <sub>DC</sub>
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	P <sub>D</sub> ( wt H/S)	15	W
	Derating	0.20	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>						
I <sub>FB</sub>	Feedback Source Current		1		mA	Ta = 25 °C , Vfb = 0
I <sub>delay</sub>	Shutdown Delay Current		5		uA	5V ≤ Vfb ≤ VSD
<b>OVER CURRENT PROTECTION SECTION</b>						
I <sub>L(MAX)</sub>	Over Current Protection	0.96	1.2	1.44	A	Max. Inductor Current
<b>UVLO SECTION</b>						
V <sub>th(H)</sub>	Start Threshold Voltage	14	15	16	V	
V <sub>th(L)</sub>	Minimum Operating Voltage	9	10	11	V	After turn on

**ELECTRICAL CHARACTERISTICS ( Continued)**

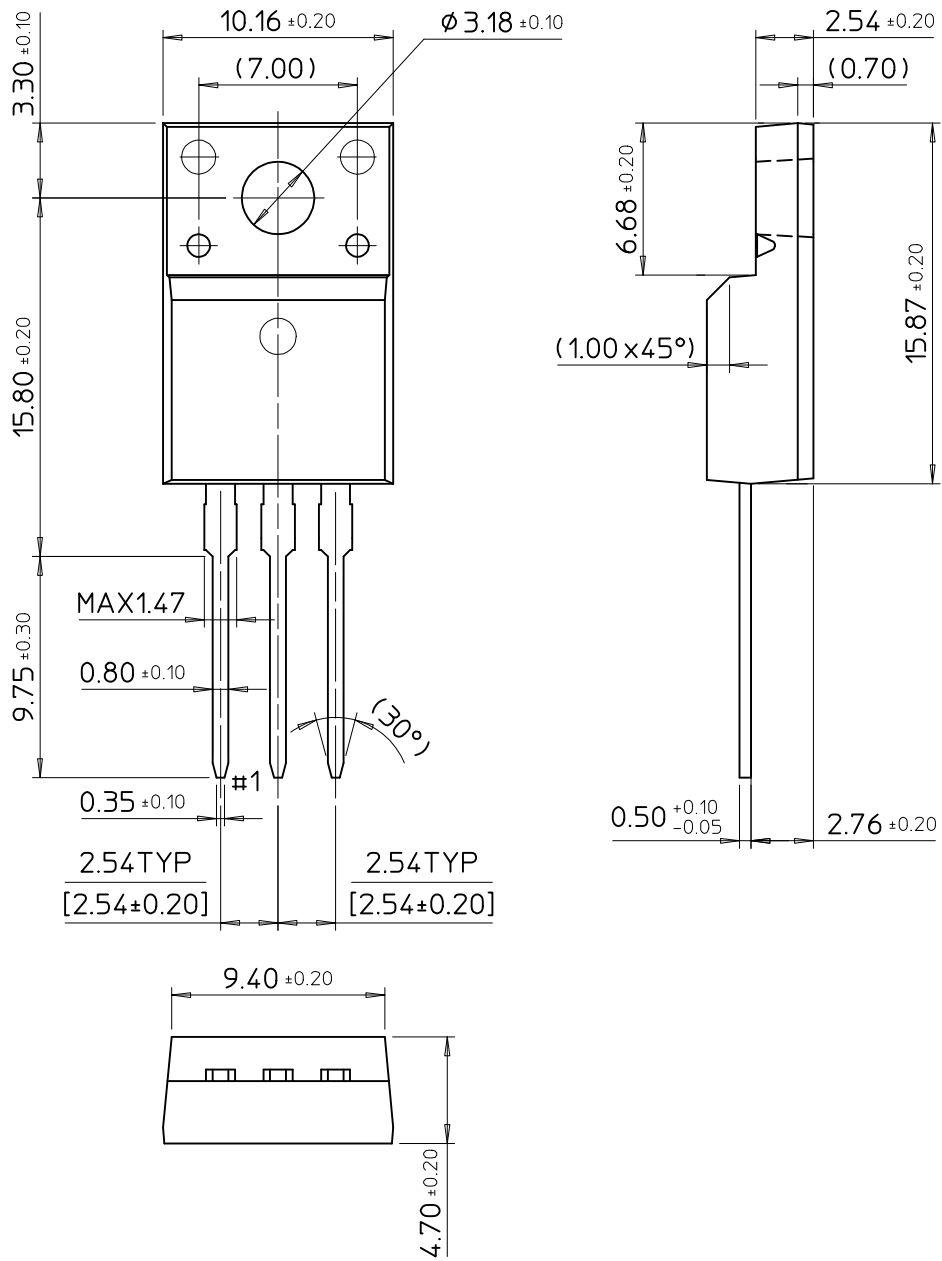
( Ta = 25 °C unless otherwise specified )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
<b>TOTAL STANDBY CURRENT SECTION</b>						
I <sub>ST</sub>	Start up Current		0.25	0.4	mA	V <sub>CC</sub> = 14V
I <sub>OPR</sub>	Operating Supply Current ( control part only )		15	18	mA	Ta = 25 °C ,
V <sub>Z</sub>	V <sub>CC</sub> Zener Voltage	30	32.5	35	V	I <sub>CC</sub> = 20mA
<b>SHUTDOWN SECTION</b>						
V <sub>SD</sub>	Shutdown Feedback Voltage	7	7.6	8.2	V	
T <sub>SD</sub>	ThermalShutdownTemperature(T <sub>j</sub> )		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.

# TO-220F

Dimensions in Millimeters



SAMSUNG ELECTRONICS CO.,LTD.