

KA1L0380R

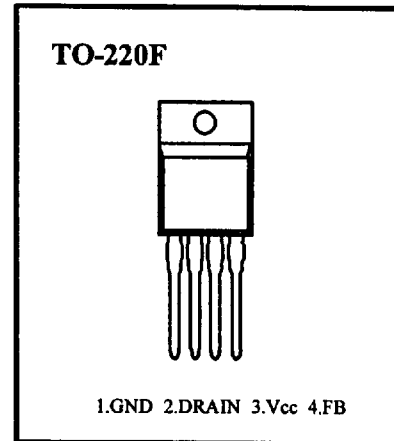
SAMSUNG POWER SWITCH

FEATURES

- Precision fixed operating frequency (50KHz)
- 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 ($\leq 0.4\text{mA}$)
- Auto restart

PRODUCT SUMMARY

Part Number	BVdss	Rds(on)	Id
KA1L0380R	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} = 1M Ω) (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-Source Off State Leakage Current (V _{ds} = 0V, V _{gs} = 0V)	I _{DSS}	250	μA
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



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	45	50	55	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						
IFB	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	2.0	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						
IST	Start up Current		0.25	0.4	mA	V _{CC} = 14V
I _{OPR}	Operating Supply Current (control part only)		15	18	mA	T _a = 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(T _j)		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.