AUK Semiconductor

STK03Y60

Advanced Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

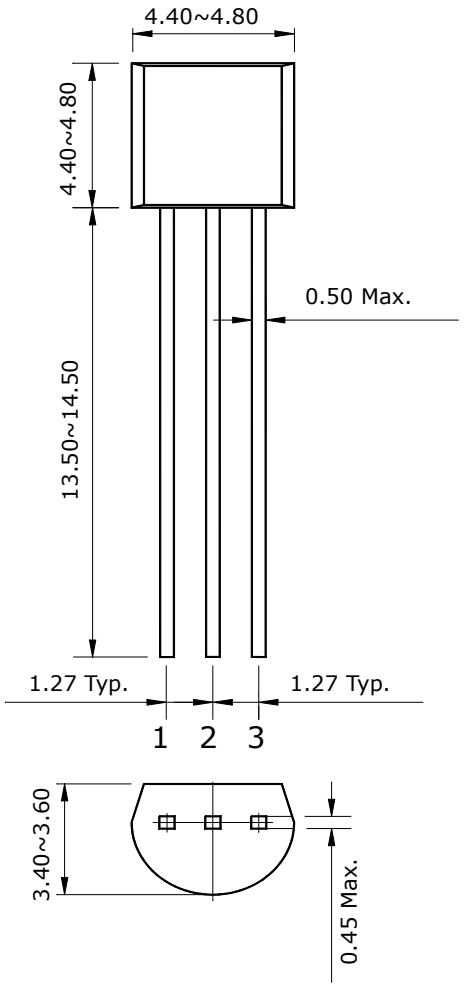
- High Voltage: BV_{DSS}=600V(Min.)
- Low C_{rss} : C_{rss}=4pF(Typ.)
- Low gate charge : Qg=12nC(Typ.)
- Low $R_{DS(on)}$: $R_{DS(on)}$=5.5Ω(Typ.)

Ordering Information

Type NO.	Marking	Package Code
STK03Y60	STK03Y60	TO-92

Outline Dimensions

unit : mm



PIN Connections
1. Gate
2. Drain
3. Source

Absolute maximum ratings

(Ta=25°C)

Characteristic	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	600	V
Gate-source voltage	V_{GSS}	±30	V
Drain current (DC) **	I_D	0.3	A
Drain current (Pulsed) *	I_{DP}	1.2	A
Total Power dissipation **	P_D	625	mW
Avalanche current (Single) ②	I_{AS}	0.3	A
Single pulsed avalanche energy ②	E_{AS}	53	mJ
Avalanche current (Repetitive) ①	I_{AR}	0.3	A
Repetitive avalanche energy ①	E_{AR}	11	mJ
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-55~150	

* Limited by maximum junction temperature

** Device mounted on a glass-epoxy board

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-a)}$ **	-	200	℃/W

N-CH Electrical Characteristics (Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250μA, V_{GS}=0	600	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250μA, V_{DS}=V_{GS}	3.0	-	5.0	V
Drain-source cut-off current	I_{DSS}	V_{DS}=600V, V_{GS}=0V	-	-	1	μA
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=150mA	-	5.5	8.5	Ω
Forward transfer conductance ④	g_{fs}	V_{DS}=10V, I_D=150mA	-	0.32	-	S
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	130	-	pF
Output capacitance	Coss		-	20	-	
Reverse transfer capacitance	Crss		-	4	-	
Turn-on delay time	$t_{d(on)}$	V_{DD}=300V, I_D=0.3A R_G=25Ω ③④	-	5.5	-	ns
Rise time	t_r		-	5	-	
Turn-off delay time	$t_{d(off)}$		-	13	-	
Fall time	t_f		-	28	-	
Total gate charge	Q_g	V_{DD}=300V, V_{GS}=10V I_D=0.3A ③④	-	12	18	nC
Gate-source charge	Q_{gs}		-	2.5	3.8	
Gate-drain charge	Q_{gd}		-	3.0	4.5	

Source-Drain Diode Ratings and Characteristics (Ta=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Source current	I_S	Integral reverse diode in the MOSFET	-	-	0.3	A
Source current(Plused) ①	I_{SM}		-	-	1.2	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=0.3A	-	0.7	1.2	V
Reverse recovery time	t_{rr}	I_s=0.3A, V_{gs}=0V di_S/dt=80A/us	-	260	-	ns
Reverse recovery charge	Q_{rr}		-	3.5	-	uC

Note ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② L=109mH, I_{AS}=0.3A, V_{DD}=50V, R_G=25Ω

③ Pulse Test : Pulse Width < 300us, Duty cycle≤ 2%

④ Essentially independent of operating temperature

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