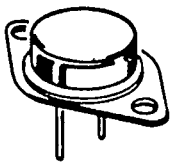
T-39-13



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SMLB

TK07400

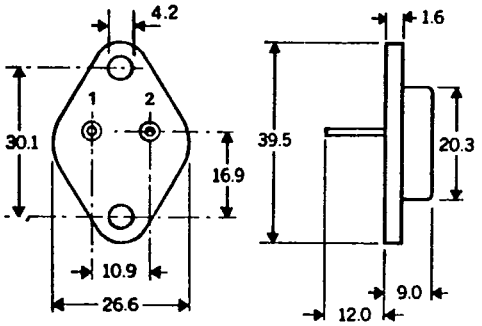
SEMELAB

BUP 61
BUP 63

MECHANICAL DATA

Dimensions in mm

MOS POWER
N-Channel Enhancement Mode



PIN 1 – Gate PIN 2 – Source CASE – Drain

TO3 Thin

APPLICATIONS

- SWITCHING REGULATORS
- CONVERTERS
- MOTOR DRIVERS

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25°C unless otherwise specified)

	Parameter	BUP 61	BUP 63
V_{DS}	Drain source voltage	350V	400V
V_{DGR}	Drain gate voltage (R_{GS} = 1MΩ)	350V	400V
I_D @ T_C = 25°C	Continuous drain current	±5·56A	
I_D @ T_C = 100°C	Continuous drain current	±3·93A	
I_{DM}	Pulsed drain current (i)	±16A	
V_{GS}	Gate-source voltage	±40V	
P_D @ T_C = 25°C	Maximum power dissipation	125W	
P_D @ T_C = 100°C	Maximum power dissipation	62·5W	
Junction to case	Linear derating factor	0·833 W/°C	
Junction to ambient	Linear derating factor	0·033 W/°C	
T_J / T_{stg}	Operating and storage temperature range	−55 to 175°C	
Lead temperature	(1/16" from case for 10 secs.)	300°C	

(i) Pulse test: Pulse width ≤300μsec, duty

BUP 61 BUP 63

SEMELAB

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ELECTRICAL CHARACTERISTICS (T_{CASE} = 25°C unless otherwise specified)

STATIC

Parameter		Type	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS}	Drain-Source Breakdown Voltage	BUP63	400	420		V	V_{GS} = 0, I_D = 1 mA
		BUP61	350	370		V	
$V_{GS(th)}$	Gate-Threshold Voltage	All	3	4	6	V	V_{DS} = V_{GS}, I_D = 1 mA
I_{GSSF}	Gate-Body Leakage Forward	All		1	100	nA	V_{GS} = +30V
I_{GSSR}	Gate-Body Leakage Reverse	All		−1	−100	nA	V_{GS} = −30V
I_{DSS}	Zero Gate Voltage Drain Current	All		0,05	1	mA	V_{DS} = Max. Rating, V_{GS} = 0
		All		0,13	2,5	mA	V_{DS} = Max. Rating, V_{GS} = 0, T_C = 150°C
$I_{D(on)}$	On-State Drain Current[1]	All	8	13		A	V_{DS}>2$V_{DS(ON)}$, V_{GS} = 10V
$V_{DS(on)}$	Static Drain-Source On-State Voltage[1]	All		3,6	4,5	V	V_{GS} = 10V , I_D = 3A
$R_{DS(on)}$	Static Drain-Source On-State Resistance[1]	All		1,2	1,5	Ω	V_{GS} = 10V , I_D = 3A
$R_{DS(on)}$	Static Drain-Source On-State Resistance[1]	All		2,4	3	Ω	V_{GS} = 10V, I_D = 3A , T_C = 125°C

DYNAMIC

g_{fs}	Forward Transductance[1]	All	2,5	3,5		S (℧)	V_{DS}>2$V_{DS(ON)}$, I_D = 3A
C_{iss}	Input Capacitance	All		840	1000	pF	V_{GS} = 0 , V_{DS} = 25V, f = 1 MHz
C_{oss}	Output Capacitance	All		150	220	pF	
C_{rss}	Reverse Transfer Capacitance	All		30	40	pF	
$t_{d(on)}$	Turn-On Delay Time	All		15	50	ns	V_{DD} = 200V, I_D ≈ 3A, R_g = 10Ω , R_L = 67Ω (MOS FET switching times are essentially independent of operating temperature.)
t_r	Rise Time	All		20	50	ns	
$t_{d(off)}$	Turn Off Delay Time	All		50	100	ns	
t_f	Fall Time	All		50	80	ns	

THERMAL RESISTANCE

R_{thJC}	Junction-to Case	All			1.2	°C/W	
R_{thJA}	Junction-to-Ambient	All			33,4	°C/W	Free Air Operation

BODY-DRAIN DIODE RATINGS AND CHARACTERISTICS

I_S	Continuous Source Current (Body Diode)	All			−5.5	A	Modified MOS POWER symbol showing the intergal P-N junction rectifer. 
I_{SM}	Source Current[1] (Body Diode)	All			−16	A	
V_{SD}	Diode Forward Voltage[1]	All		−0,9		V	T_C=25°C, I_S=−5.5A, V_{GS} = 0
t_{rr}	Reverse Recovery Time	All		400		ns	T_J =150°C , I_F = I_S, dI_F/ds =100 A/μs

1 Pulse Test: Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%