2SK1506

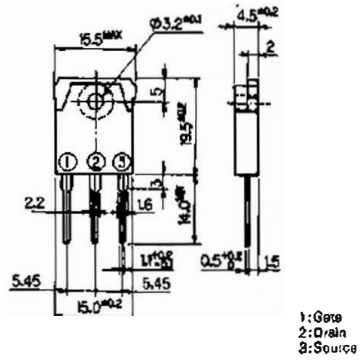
Features

- High current
- Low no-resistance
- Low driving power
- High forward Transconductance

Applications

- Motor controllers
- Genaral purpose power amplifier
- DC-DC converters

Outline Drawings



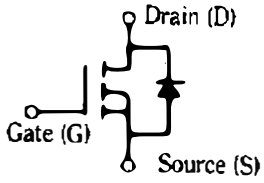
JEDEC	
EIAJ	SC-65

Max. Ratings and Characteristics

Absolute Maximum Ratings(Tc=25°C)

Items	Symbols	Ratings	Units
Drain-source voltage	V_{DSS}	120	V
Continuous drain current	I_D	50	A
Pulsed drain current	$I_{D(pulse)}$	200	A
Continuous reverse drain current	I_{DR}	50	A
Gate-source peak voltage	V_{GSS}	+20	V
Max. power dissipation	P_D	150	W
Operating and storage temperature range	T_{ch}	150	°C
	T_{st}	−55~+150	°C

Equivalent Circuit Schematic



Electrical Characteristics(Tc=25°C)

Items	Symbols	Test Conditions	Min	T	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V	120			V
Gate threshold voltage	$V_{GS(th)}$	I_D=10mA V_{DS}=V_{GS}	1.0	1.5	2.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=120V V_{GS}=0V T_{ch}=25°C		10	500	μA
		V_{DS}=120V V_{GS}=0V T_{ch}=125°C		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=25A V_{GS}=4V		25	45	mΩ
		I_D=25A V_{GS}=10V		20	30	mΩ
Forward transconductance	g_{fs}	I_D=25A V_{DS}=25V	25	50		
Input capacitance	C_{iss}	V_{DS}=25V		5000	7500	
Output capacitance	C_{oss}	V_{GS}=0V		920	1380	pF
Reverse transfer capacitance	C_{rss}	f=1MHz		500	750	
Turn-on time t_{on}	$td_{(on)}$			30	45	
(t_{on}=$t_{d(on)}$+t_r)	t_r	V_{CC}=60V I_D=50A		200	300	
Turn-off time t_{off}	$td_{(off)}$	V_{GS}=10V		950	1425	ns
(t_{off}=$t_{d(off)}$+t_f)	t_f	R_G=25Ω		400	600	
Diode forward on-voltage	V_{SD}	I_F=2×I_{DR} V_{GS}=0V T_{ch}=25°C		1.33	2.0	V
Reverse recovery time	t_{rr}	I_F=I_{DR} di/dt=100A/μs T_{ch}=25°C		150		ns

Thermal Characteristics

Items	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-a)}$	channel to air			35.0	°C/W
	$R_{th(ch-c)}$	channel to case			0.833	°C/W