New Jersey Semi-Conductor Products, Inc.

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2SK1089

F-III Series

> Features

- High Current
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- High Forward Transconductance

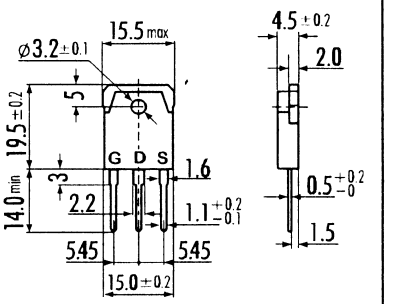
N-channel MOS-FET			
60V	0,035Ω	35A	80W

> Applications

- Motor Control
- General Purpose Power Amplifier
- DC-DC converters

> Outline Drawing

TO-3P

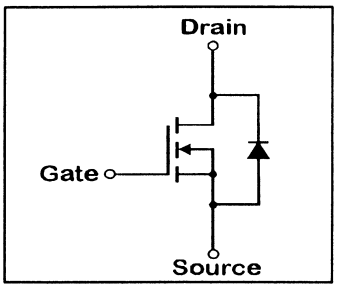


> Maximum Ratings and Characteristics

- Absolute Maximum Ratings (T_C=25°C), unless otherwise specified

Item	Symbol	Rating	Unit
Drain-Source-Voltage	V_{DS}	60	V
Continous Drain Current	I_D	35	A
Pulsed Drain Current	$I_{D(puls)}$	140	A
Continous Reverse Drain Current	I_{DR}	35	A
Gate-Source-Voltage	V_{GS}	±20	V
Max. Power Dissipation	P_D	80	W
Operating and Storage Temperature Range	T_{ch}	150	°C
	T_{stg}	-55 ~ +150	°C

> Equivalent Circuit



- Electrical Characteristics (T_C=25°C), unless otherwise specified

Item	Symbol	Test conditions		Min.	Typ.	Max.	Unit
Drain-Source Breakdown-Voltage	$V_{(BR)DSS}$	I_D=1mA	V_{GS}=0V	60			V
Gate Threshhold Voltage	$V_{GS(th)}$	I_D=1mA	V_{DS}=V_{GS}	1,0	1,5	2,5	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V	T_{ch}=25°C		10	500	µA
		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=17,5A	V_{GS}=4V		0,037	0,056	Ω
		I_D=17,5A	V_{GS}=10V		0,025	0,035	Ω
Forward Transconductance	g_{fs}	I_D=17,5A	V_{DS}=25V	10	18		S
Input Capacitance	C_{iss}	V_{DS}=25V			1800	2700	pF
Output Capacitance	C_{oss}	V_{GS}=0V			620	930	pF
Reverse Transfer Capacitance	C_{rss}	f=1MHz			240	360	pF
Turn-On-Time t_{on} (t_{on}=$t_{d(on)}$+t_r)	$t_{d(on)}$	V_{CC}=30V			6	9	ns
	t_r	I_D=35A			60	90	ns
Turn-Off-Time t_{off} (t_{on}=$t_{d(off)}$+t_f)	$t_{d(off)}$	V_{GS}=10V			350	530	ns
	t_f	R_{GS}=25 Ω			150	230	ns
Diode Forward On-Voltage	V_{SD}	I_F=2xI_{DR}	V_{GS}=0V T_{ch}=25°C		1,35	2,0	V
Reverse Recovery Time	t_{rr}	I_F=I_{DR}	V_{GS}=0V		200		ns
		-dI_F/dt=100A/µs	T_{ch}=25°C				

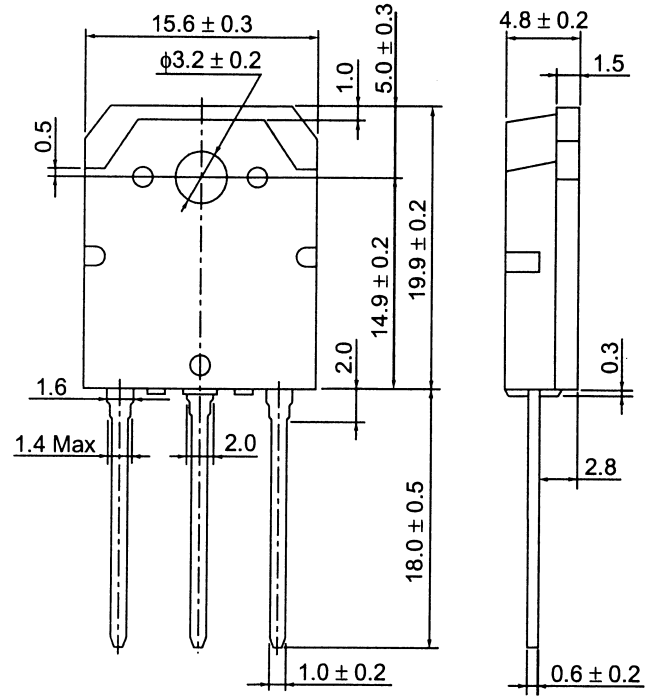
- Thermal Characteristics

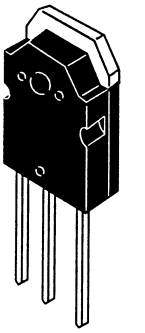
Item	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Thermal Resistance	$R_{th(ch-a)}$	channel to air			35	°C/W
	$R_{th(ch-c)}$	channel to case			1,56	°C/W

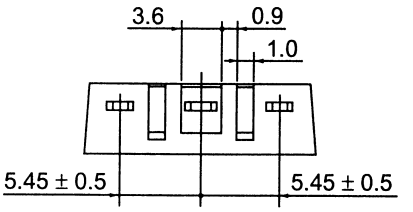
Package Dimensions

As of January, 2001

Unit: mm







Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Mass (reference value)	5.0 g