

### 富士電機株式会社 電子カンパニー パワー半導体事業部

〒141-0032 東京都品川区大崎一丁目11番2号(ゲートシティ大崎イーストタワー)  
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 中部支社 半導体営業部 (052)234-4482 九州支社 半導体営業部 (092)731-7132  
 URL <http://www.fujielectric.co.jp/denshi/scd>

### Features

- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- Avalanche-proof

### Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

### Maximum ratings and characteristic Absolute maximum ratings

(Tc=25°C unless otherwise specified)

Item	Symbol	Rated	Unit
Drain-source voltage	Vds	500	V
Continuous drain current	Id	±6	A
Pulsed drain current	Id(puls)	±24	A
Gate-source voltage	Vgs	±30	V
Repetitive or non-repetitive	IAR *2	6	A
Maximum Avalanche Energy	EAS *1	115	mJ
Maximum Drain-Source dV/dt	dVds/dt *4	20	kV/μs
Peak Diode Recovery dV/dt	dV/dt *3	5	kV/μs
Max. power dissipation	Pd	Ta=25°C	2.02
		Tc=25°C	45
Operating and storage temperature range	Tch	+150	°C
	Tstg	-55 to +150	°C

\*1 L=5.80mH, Vcc=50V \*2 Tch≤150°C \*3 If≤-Id, -di/dt=50A/μs, Vcc≤BVds, Tch≤150°C  
 \*4 VDS≤500V

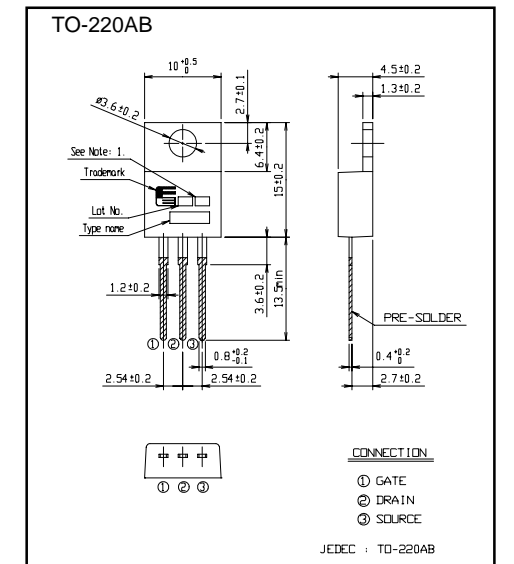
### Electrical characteristics (Tc =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	Id=250μA VGS=0V	500			V
Gate threshold voltage	VGS(th)	Id=250μA VDS=VGS	3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=500V VGS=0V	Tch=25°C		25	μA
			Tch=125°C		250	
Gate-source leakage current	IGSS	VGS=±30V VDS=0V		10	100	nA
Drain-source on-state resistance	RDS(on)	Id=3A VGS=10V		1.15	1.50	Ω
Forward transconductance	gfs	Id=3A VDS=25V	2.5	5		S
Input capacitance	Ciss	VDS=25V		430	675	pF
Output capacitance	Coss	VGS=0V		60	90	
Reverse transfer capacitance	Crss	f=1MHz		2.5	4.5	
Turn-on time ton	td(on)	Vcc=300V Id=3A		10	15	ns
	tr		VGS=10V		5	
Turn-off time toff	td(off)	RGS=10 Ω		20	30	
	tf				5	
Total Gate Charge	QG	Vcc=250V		15	22.5	nC
Gate-Source Charge	QGS	Id=6A		6.5	10.5	
Gate-Drain Charge	QGD	VGS=10V		2.5	4.5	
Avalanche capability	IAV	L=5.8mH Tch=25°C	6			A
Diode forward on-voltage	VSD	If=6A VGS=0V Tch=25°C		1.00	1.50	V
Reverse recovery time	trr	If=6A VGS=0V		0.5		μs
Reverse recovery charge	Qrr	-di/dt=100A/μs Tch=25°C		1.7		μC

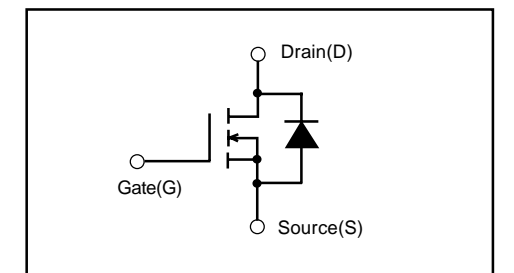
### Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	Rth(ch-c)	channel to case			2.78	°C/W
	Rth(ch-a)	channel to ambient			62.0	°C/W

### Outline Drawings



### Equivalent circuit schematic



Characteristics

