

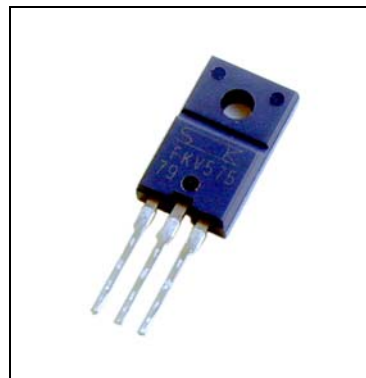
## ■Features

- High Current Capability ( $I_D$ :75A (DC))
- Low on-resistance ( $R_{DS(on)}$ :7m $\Omega$  typ)
- Avalanche energy guarantee

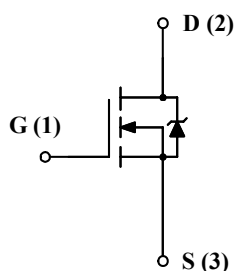
## ■Applications

- DC-DC Converters
- High speed switching

## ■Package----FM20(TO220 Full Mold)



## ■Equivalent circuit



## Absolute maximum ratings

(Ta=25°C)

Characteristic	Symbol	Rating	Unit
Drain to Source Voltage	VDSS	50	V
Gate to Source Voltage	VGSS	±20	V
Continuous Drain Current	ID	±75A	A
Pulsed Drain Current	ID(pulse) <sup>1)</sup>	±200A	A
Maximum Power Dissipation	PD	40 (Tc=25°C)	W
Single Pulse Avalanche Energy	EAS <sup>2)</sup>	300	mJ
Avalanche Current	IAS	75	A
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	−55 to 150	°C

1) PW≤100μs, duty cycle≤1%

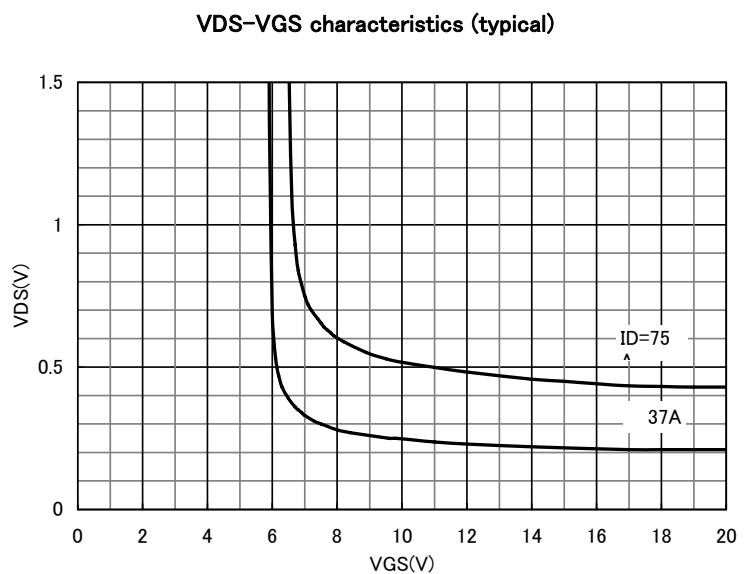
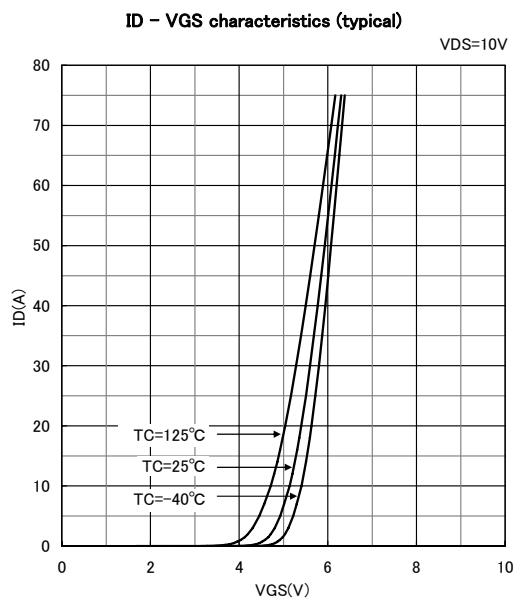
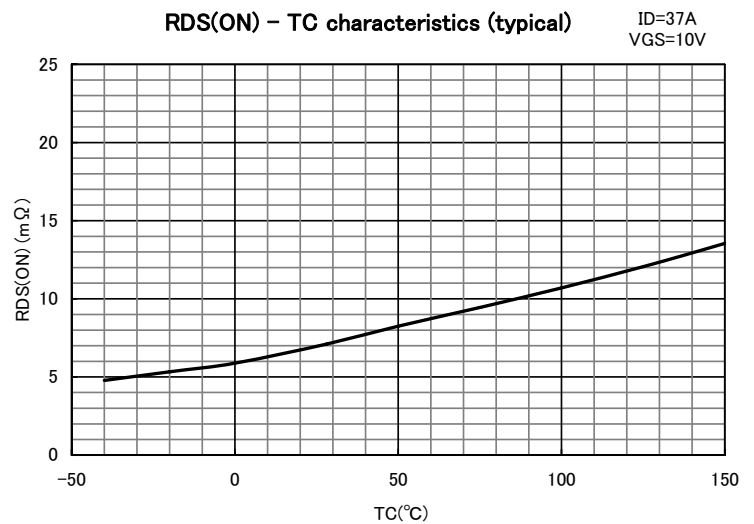
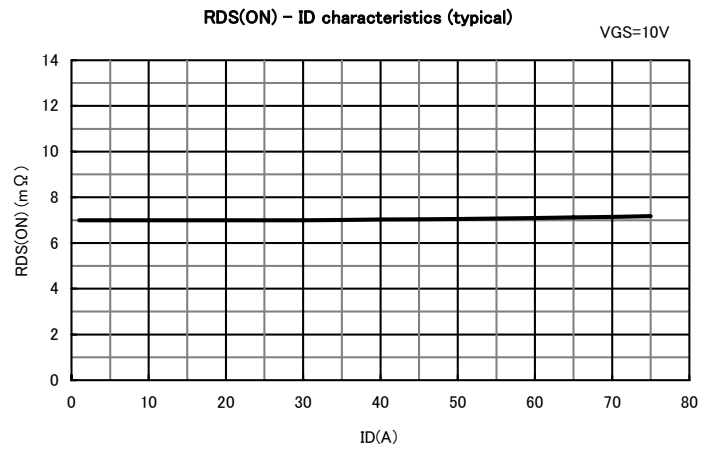
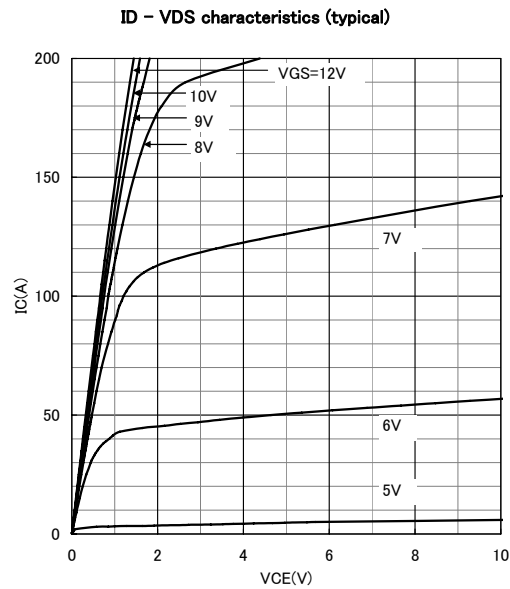
2) VDD=20V, L=64μH, ILp=75A, unclamped, RG=50Ω, See Fig.1

### Electrical characteristics

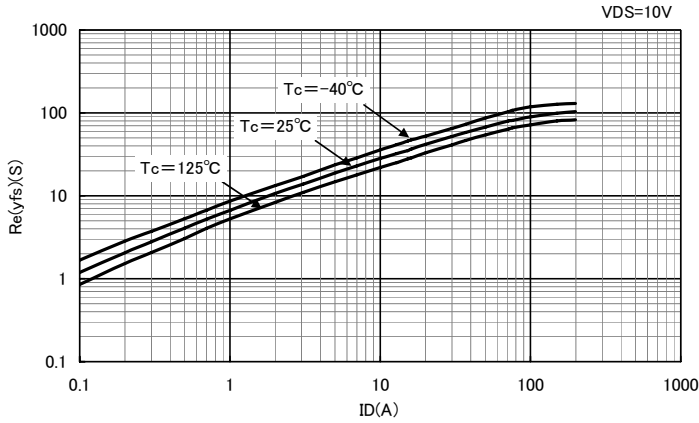
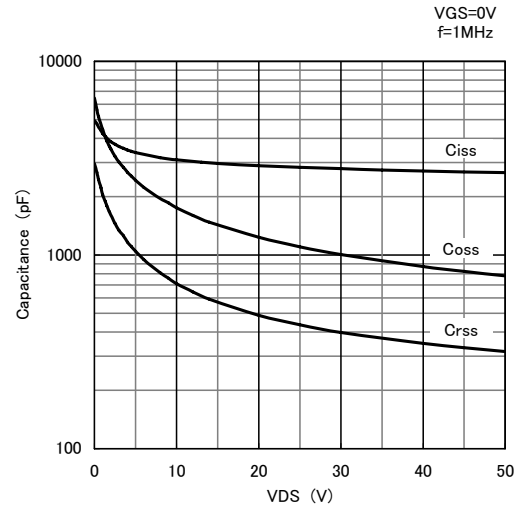
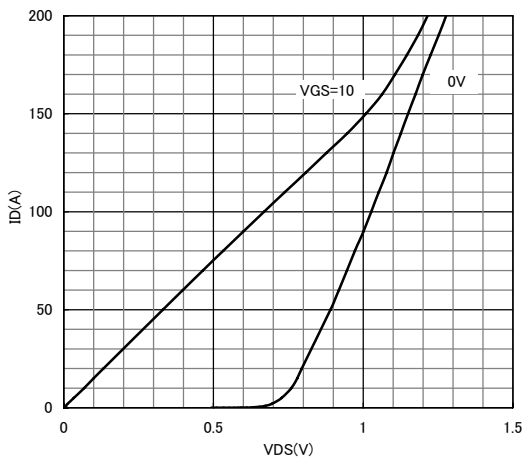
(Ta=25°C)

Characteristic	Symbol	Test Conditions	Limits			Unit
			MIN.	TYP.	MAX.	
Drain to Source breakdown Voltage	V(BR)DSS	ID=100 $\mu$ A, VGS=0V	50			V
Gate to Source Leakage Current	IGSS	VGS=±20V			±100	nA
Drain to Source Leakage Current	IDSS	VDS=50V, VGS=0V			100	$\mu$ A
Gate Threshold Voltage	VTH	VDS=10V, ID=250 $\mu$ A	3.0		4.5	V
Forward Transconductance	Re(Yfs)	VDS=10V, ID=37A	30			S
Static Drain to Source On-Resistance	RDS(on)	ID=37A, VGS=10V		7	10	m $\Omega$
Input Capacitance	Ciss	VDS=10V VGS=0V f=1MHz		3200		pF
Output Capacitance	Coss			1800		
Reverse Transfer Capacitance	Crss			750		
Turn-On Delay Time	td(on)	ID=37A, VDD≈25V RL=0.7 $\Omega$ , VGS=10V RG=10 $\Omega$ See Fig.2		40		ns
Rise Time	tr			280		
Turn-Off Delay Time	td(off)			130		
Fall Time	tf			120		
Total Gate Charge	Qg	ID=37A, VDD≈25V RL=0.7 $\Omega$ , VGS=10V		70		nC
Gate to Source Charge	Qgs			15		
Gate to Drain Charge	Qgd			30		
Source-Drain Diode Forward Voltage	VSD	ISD=75A, VGS=0V		1.0	1.5	V

### Characteristic Curves (Tc=25°C)



## Characteristic Curves (T<sub>c</sub>=25°C)

Re(y<sub>fs</sub>) - I<sub>D</sub> characteristics (typical)Capacitance—V<sub>DS</sub> characteristics (typical)I<sub>D</sub>R—V<sub>DS</sub> characteristics (typical)

SAFE OPERATING AREA

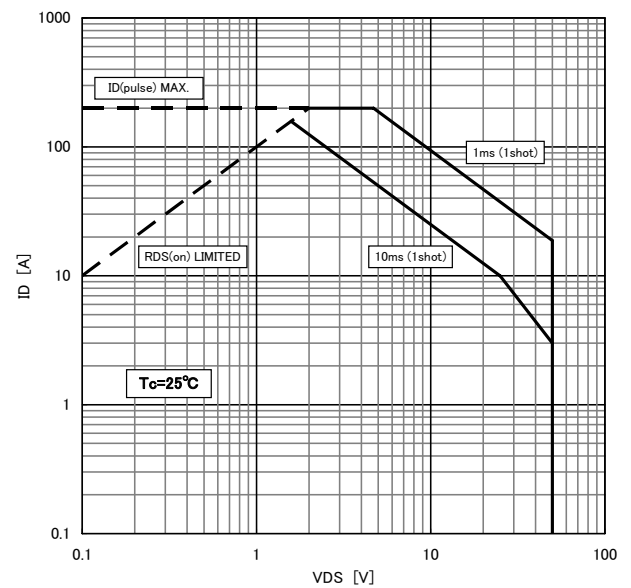
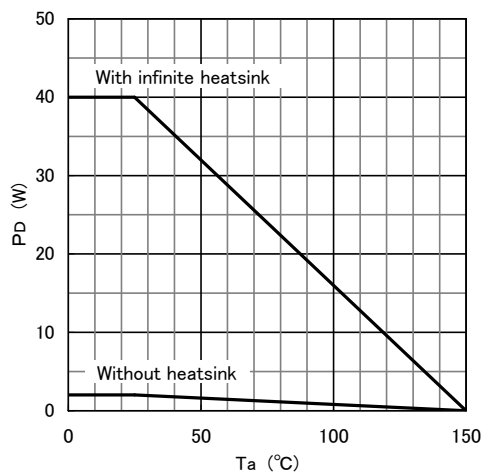
P<sub>D</sub> — T<sub>a</sub> characteristics

Fig.1 Unclamped Inductive Test Method

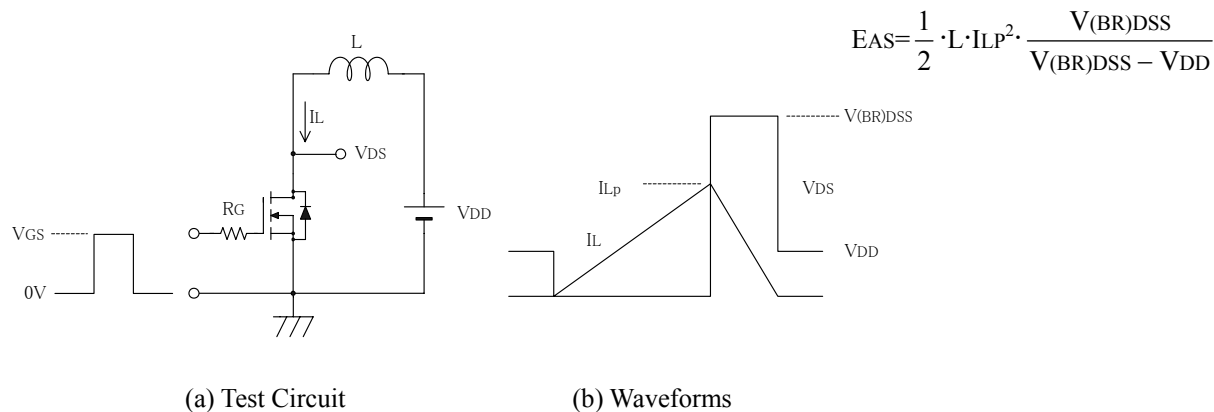
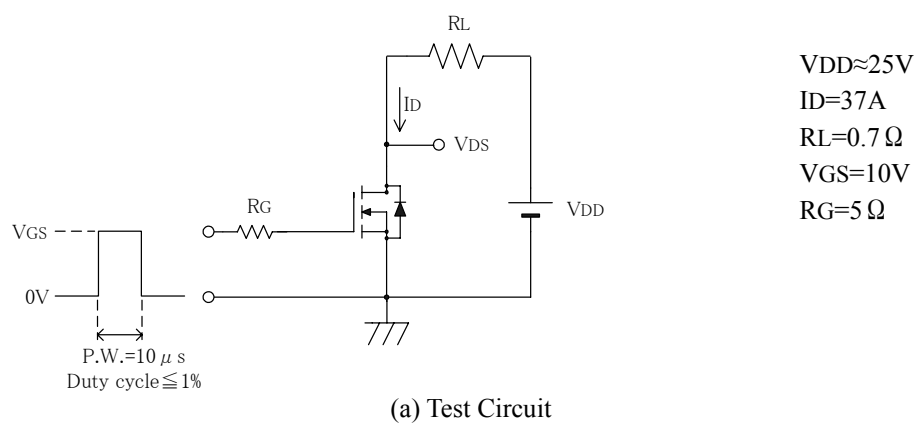
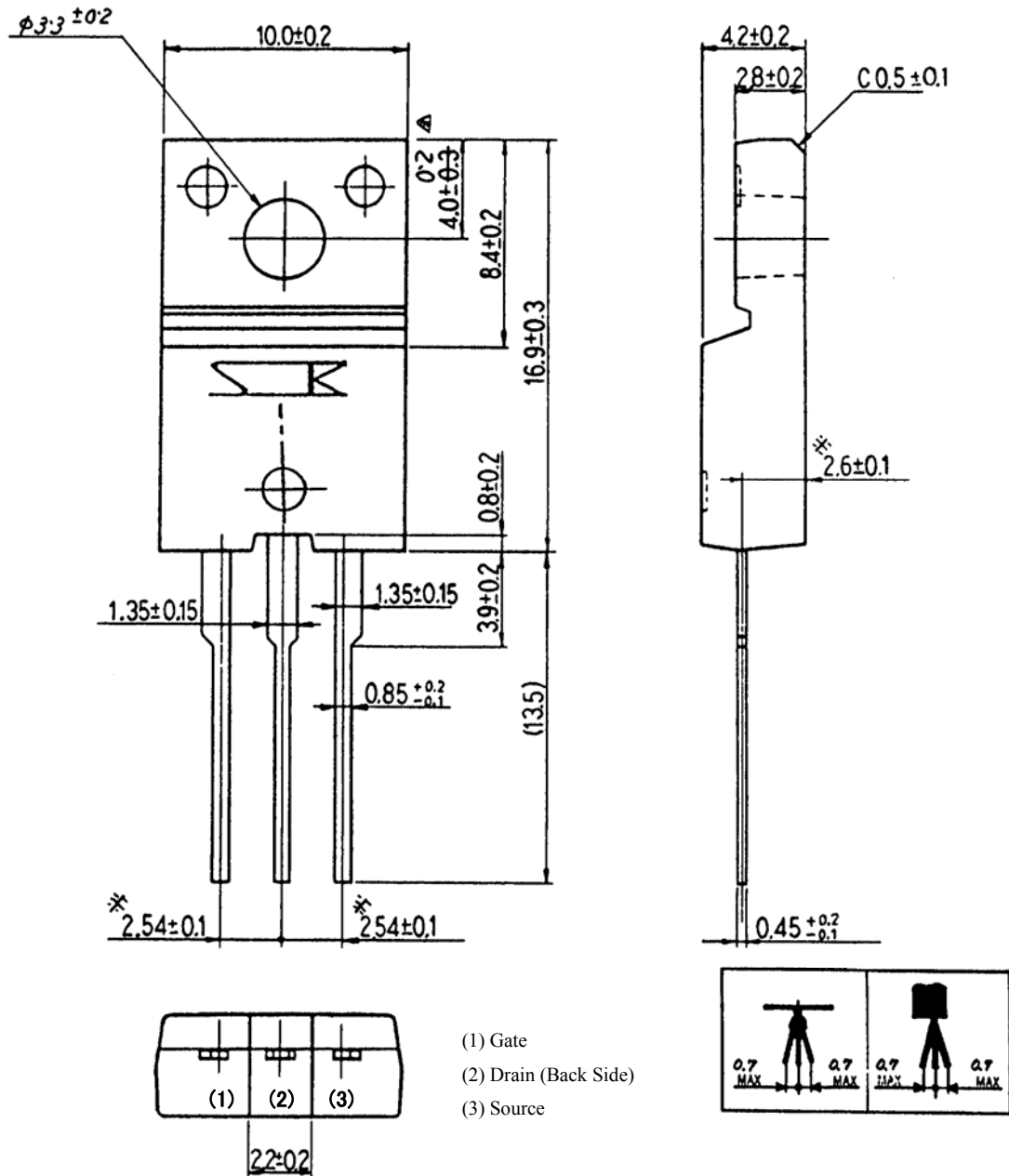


Fig.2 Switching Time Test Method



### Outline

FM20 (TO220 Full Mold)



Weight Approx. 2g

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