

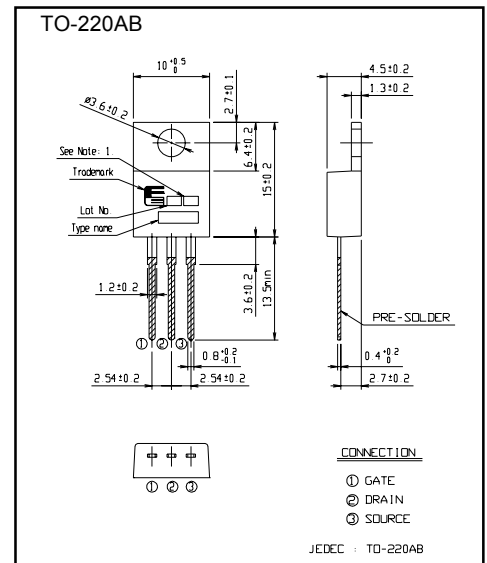
Features

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

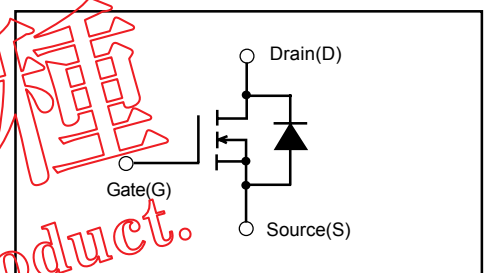
Applications

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

Outline Drawings [mm]



Equivalent circuit schematic



Maximum ratings and characteristicAbsolute maximum ratings

● (T_c=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Drain-source voltage	V _{DS}	60	V
Continuous drain current	I _D	45	A
Pulsed drain current	I _{DP}	180	A
Gate-source voltage	V _{GS}	±20	V
Maximum avalanche energy	E _{AV}	461.9	mJ
Maximum power dissipation	P _D	60	W
Operating and storage	T _{ch}	150	°C
Temperature range	T _{stg}	-55 to +150	°C

*1 L=0.304mH, V_{CC}=24V

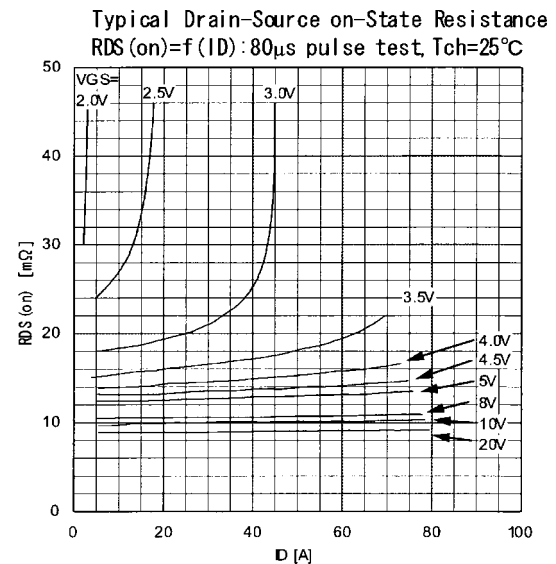
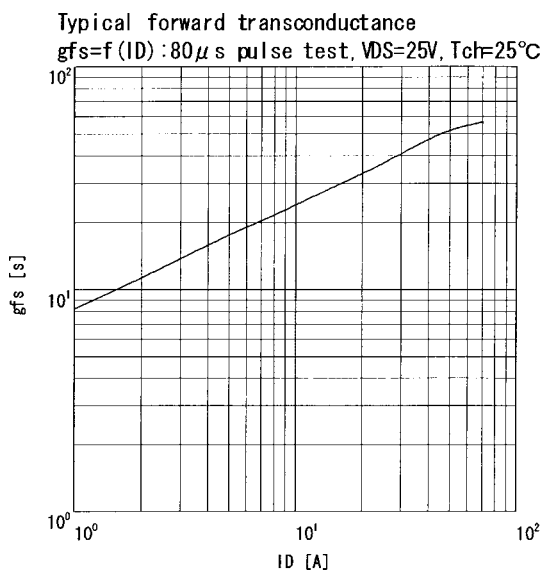
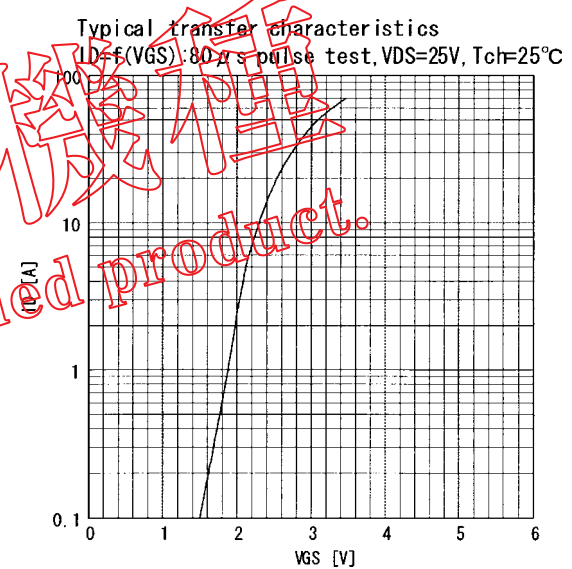
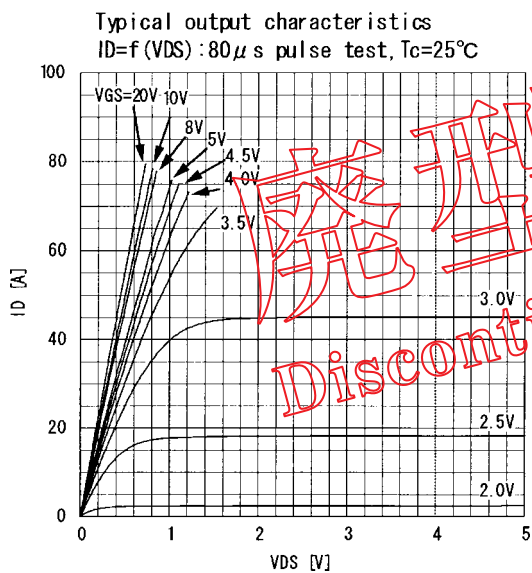
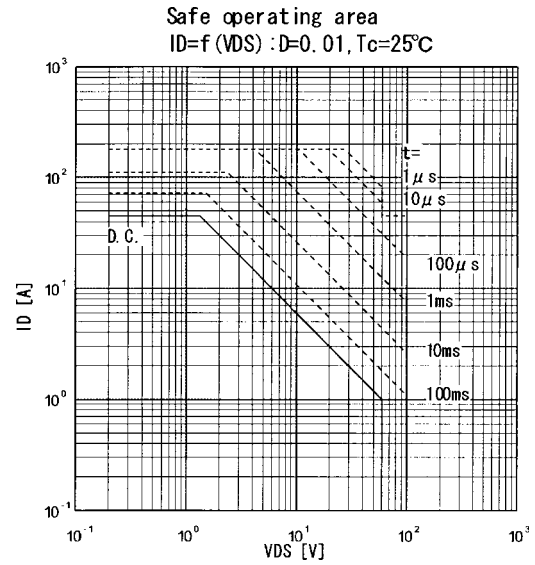
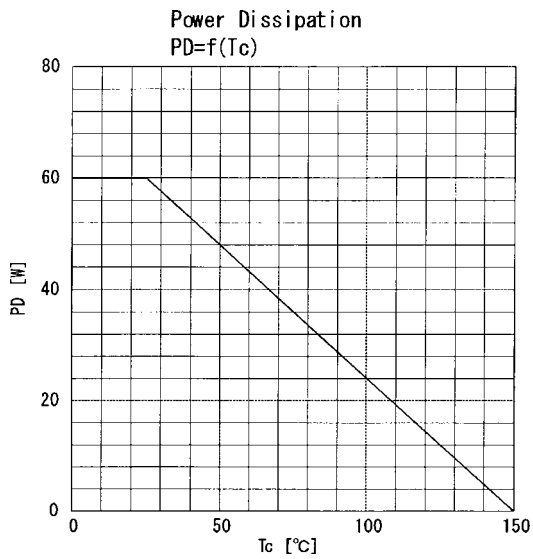
Electrical characteristics (T_c=25°C unless otherwise specified)

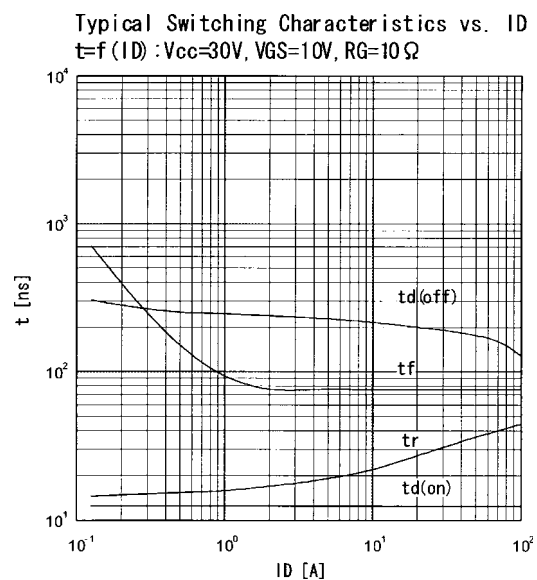
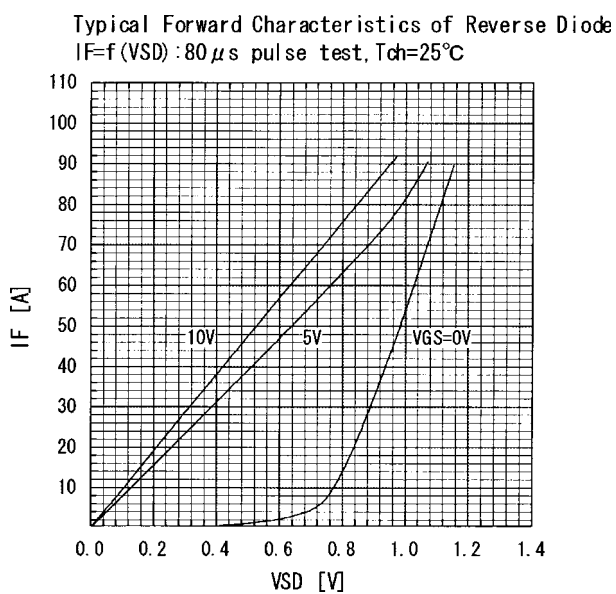
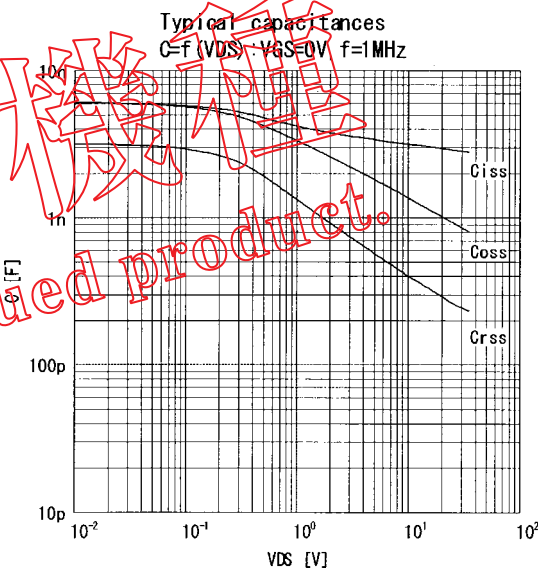
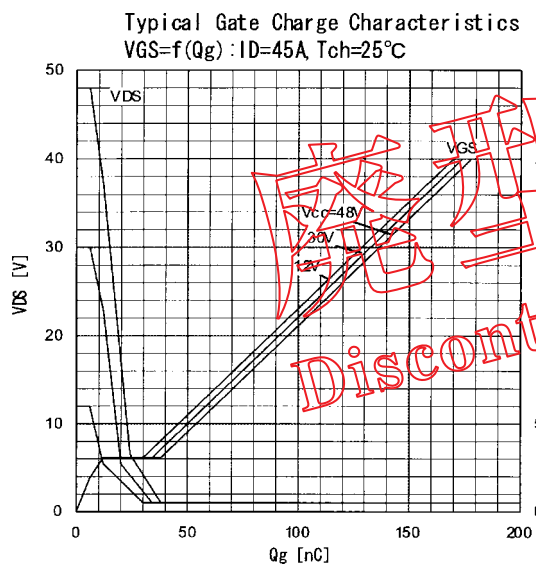
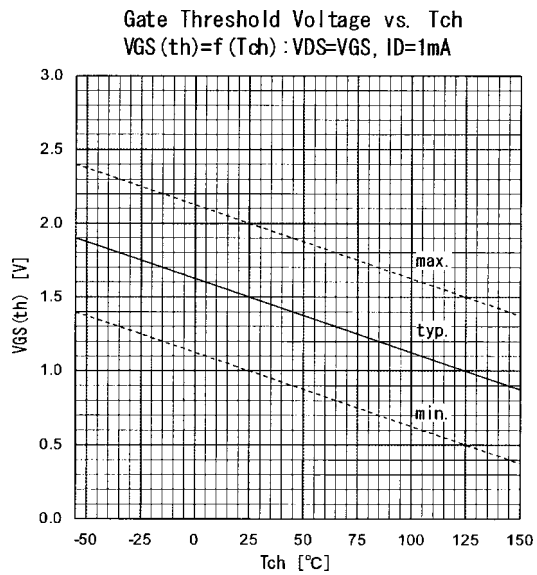
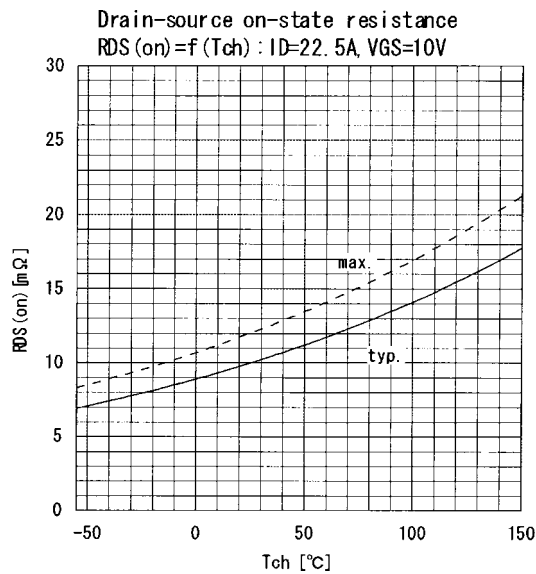
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	BV _{DSS}	I _D =1mA V _{GS} =0V	60			V
Gate threshold voltage	V _{GS(th)}	I _D =1mA V _{DS} =V _{GS}	1.0	1.5	2.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V V _{GS} =0V		10	500	μA
		T _{ch} =25°C		0.2	1.0	mA
Gate-source leakage current	I _{GSS}	V _{GS} =±20V V _{DS} =0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =22.5A		15	20	mΩ
		V _{GS} =4V		10	12	
Forward transconductance	g _{fs}	I _D =22.5A V _{DS} =25V	15.0	35.0		S
Input capacitance	C _{iss}	V _{DS} =25V		2900	4350	pF
Output capacitance	C _{oss}	V _{GS} =0V		930	1400	
Reverse transfer capacitance	C _{rss}	f=1MHz		260	390	
Turn-on time t _{on}	td(on)	V _{CC} =30V I _D =45A		13	30	ns
	t _r			35	50	
Turn-off time t _{off}	td(off)	V _{GS} =10V		190	290	
	t _f	R _{GS} =10Ω		75	140	
Avalanche capability	I _{AV}	L=100μH T _{ch} =25°C	45			A
Diode forward on-voltage	V _{SD}	I _F =45A V _{GS} =0V T _{ch} =25°C		0.95	1.43	V
Reverse recovery time	t _{rr}	I _F =45A V _{GS} =0V		55		ns
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		0.10		μC

Thermalcharacteristics

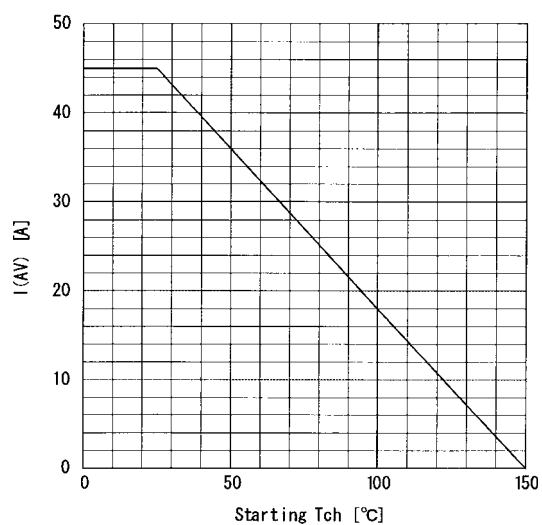
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			2.08	°C/W
	R _{th(ch-a)}	channel to ambient			75.0	°C/W

Characteristics





Maximum Avalanche Current vs. starting Tch
 $I_{(AV)} = f(\text{starting Tch})$



Maximum Avalanche energy vs. starting Tch
 $E_{as} = f(\text{starting Tch}) : V_{cc} = 24V, I_{AV} \leq 45A$

