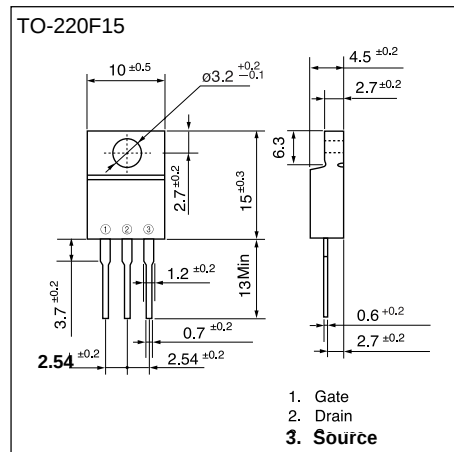


N-CHANNEL SILICON POWER MOS-FET**■ Features**

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

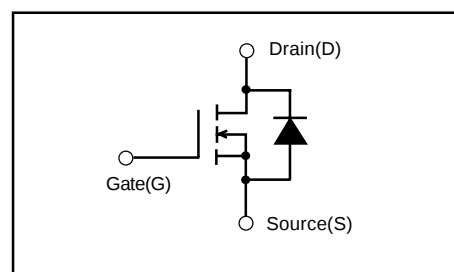
■ Applications

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

**■ Maximum ratings and characteristic Absolute maximum ratings**

● (Tc=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Drain-source voltage	V _{DS}	200	V
Continuous drain current	I _D	±20	A
Pulsed drain current	I _D (puls)	±80	A
Gate-source voltage	V _{GS}	±20	V
Maximum Avalanche Energy	E _{AV} *1	355	mJ
Max. power dissipation	T _a =25°C P _D	2	W
	T _c =25°C P _D	45	W
Operating and storage temperature range	T _{ch}	+150	°C
	T _{stg}	-55 to +150	°C

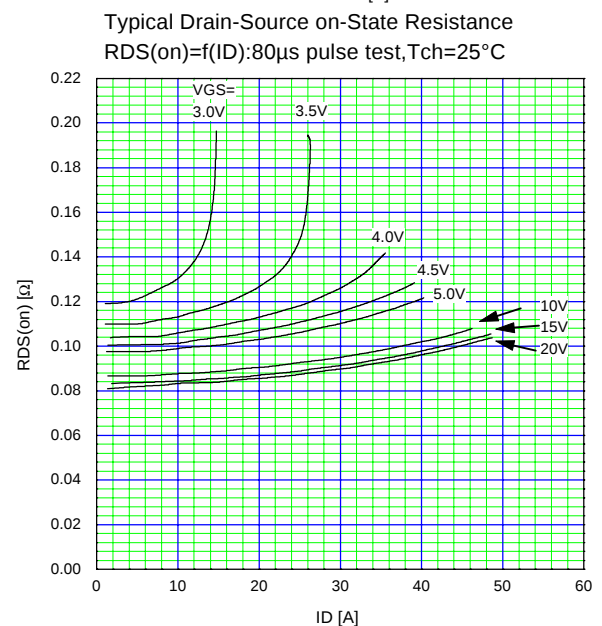
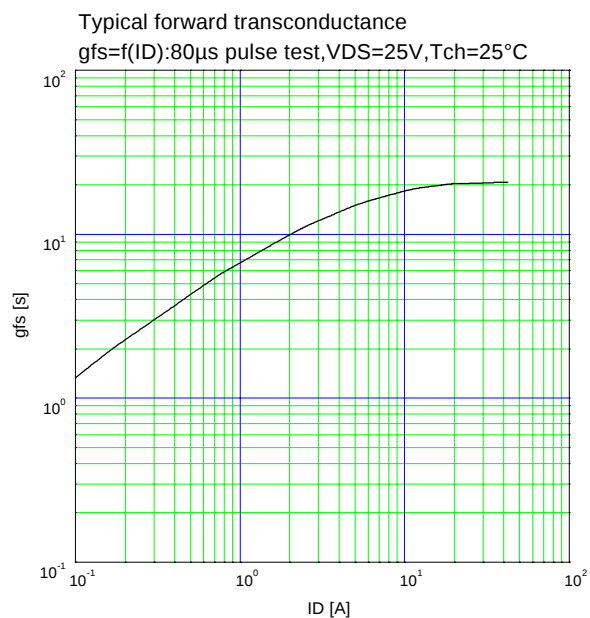
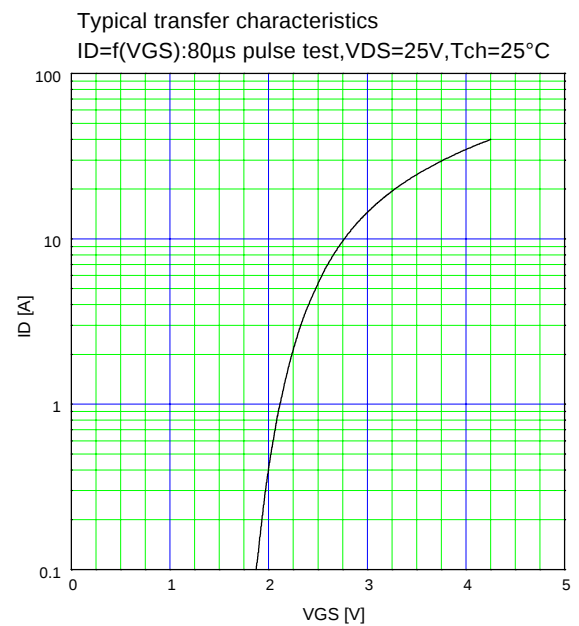
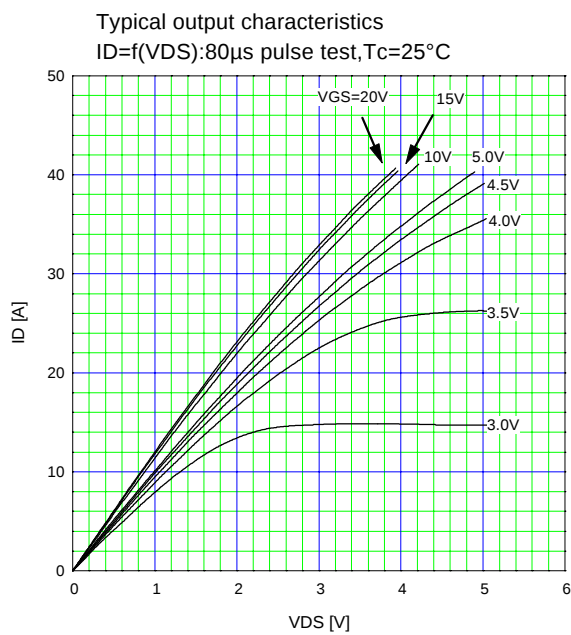
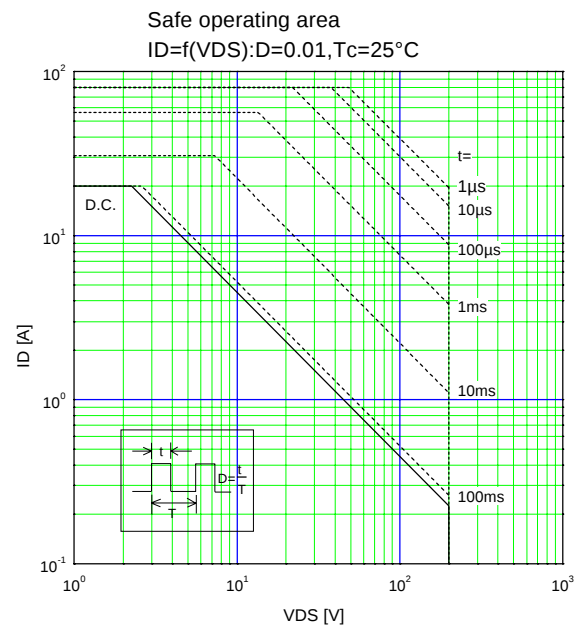
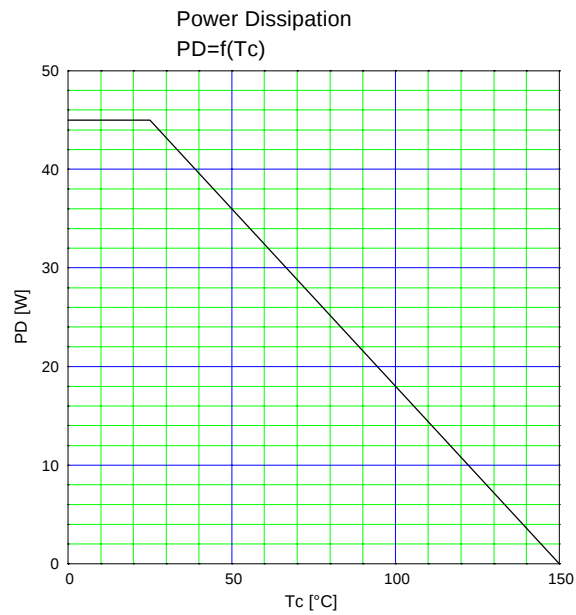
*1 L=1.6mH, V_{cc}=24V**■ Equivalent circuit schematic****● Electrical characteristics (T_c =25°C unless otherwise specified)**

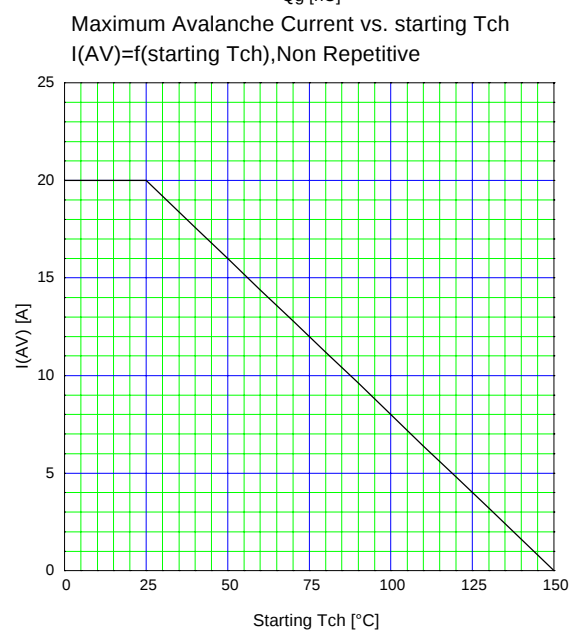
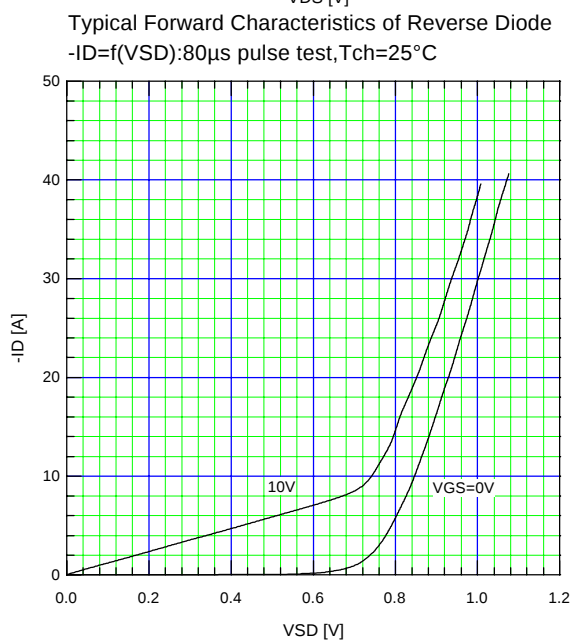
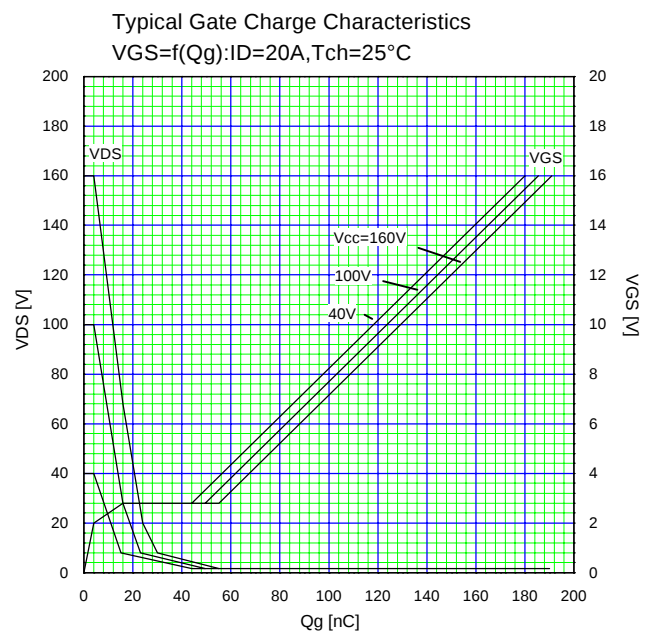
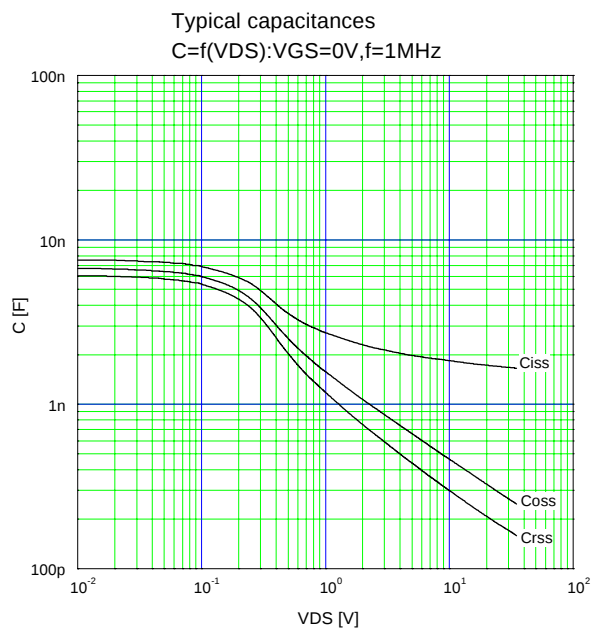
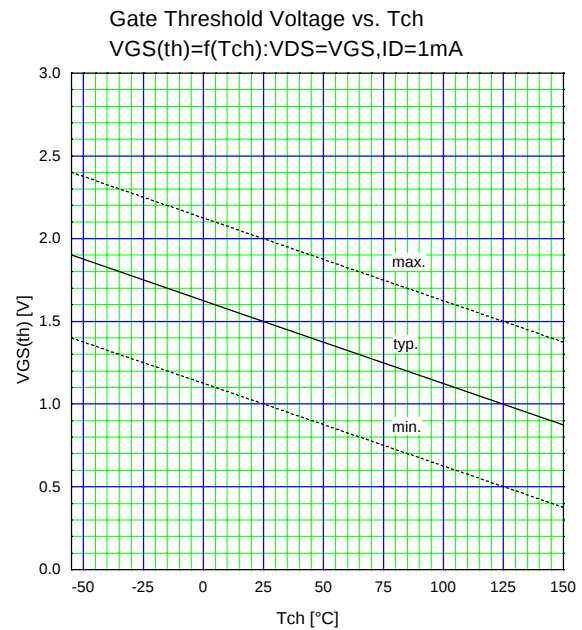
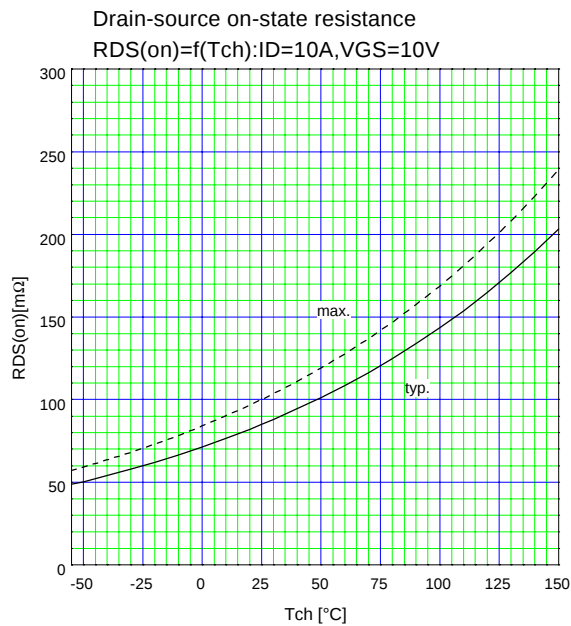
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =1mA V _{GS} =0V	200			V
Gate threshold voltage	V _{GS(th)}	I _D =1mA V _{DS} =V _{GS}	1.0	1.5	2.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =200V V _{GS} =0V T _{ch} =25°C		10	500	μA
		T _{ch} =125°C		0.2	0.5	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 =10A V _{GS} =4V		110	150	mΩ
		I _D =10A V _{GS} =10V		85	100	
Forward transconductance	g _{fs}	I _D =10A V _{DS} =25V	9.0	19.0		S
Input capacitance	C _{iss}	V _{DS} =25V		1700	2550	pF
Output capacitance	C _{oss}	V _{GS} =0V		290	435	
Reverse transfer capacitance	C _{rss}	f=1MHz		185	280	
Turn-on time t _{on}	td(on)	V _{CC} =100V I _D =20A		10	15	ns
	t _r	V _{GS} =10V		45	70	
Turn-off time t _{off}	td(off)	R _{GS} =10Ω		225	340	
	t _f			120	180	
Avalanche capability	I _{AV}	L=100μH T _{ch} =25°C	20			A
Diode forward on-voltage	V _{SD}	I _F =20A V _{GS} =0V T _{ch} =25°C		0.93	1.40	V
Reverse recovery time	t _{rr}	I _F =20A V _{GS} =0V		250		ns
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		2.90		μC

● Thermal characteristics

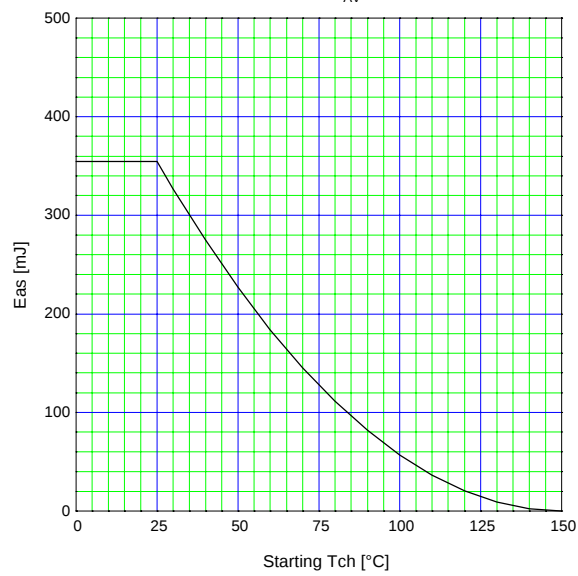
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			2.78	°C/W
	R _{th(ch-a)}	channel to ambient			62.5	°C/W

Characteristics





Maximum Avalanche energy vs. starting Tch
 $E_{as}=f(\text{starting Tch}): V_{cc}=24V_{AV}, I_A \leq 20A, \text{Non-Repetitive}$



Transient Thermal Impedance

$$Z_{th(ch-c)}=f(t): D=t/T$$

