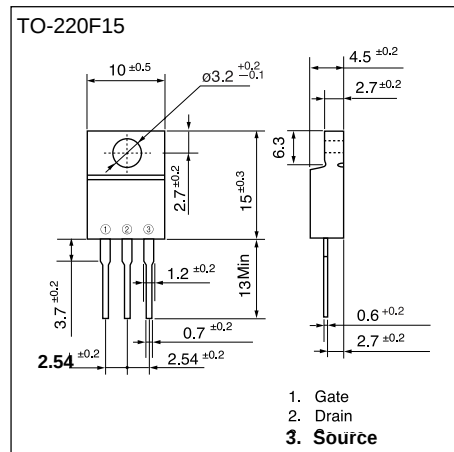


N-CHANNEL SILICON POWER MOS-FET**■ Features**

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

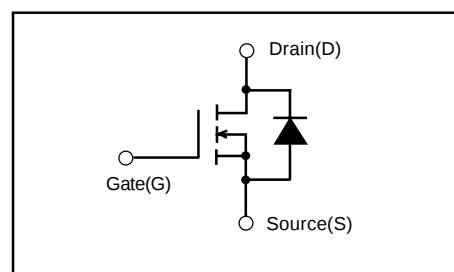
■ Applications

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	$T_a=25^{\circ}C$ P_D	2	W
	$T_c=25^{\circ}C$ P_D	45	W
Operating and storage temperature range	T_{ch}	+150	°C
	T_{stg}	-55 to +150	°C

*1 L=1.6mH, Vcc=24V

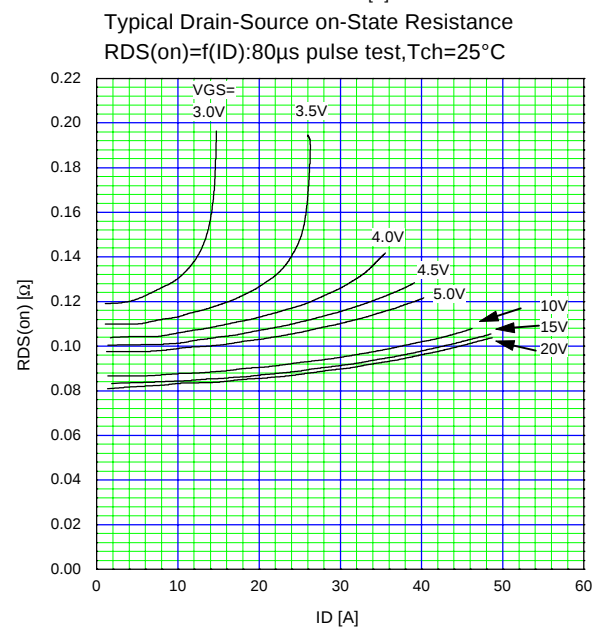
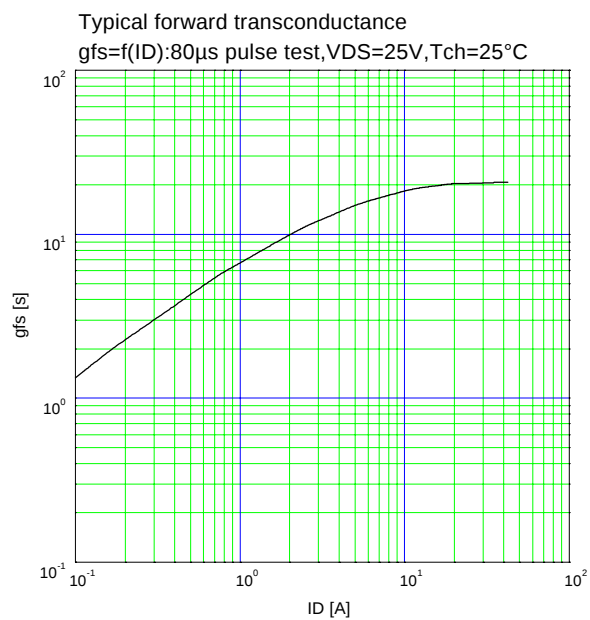
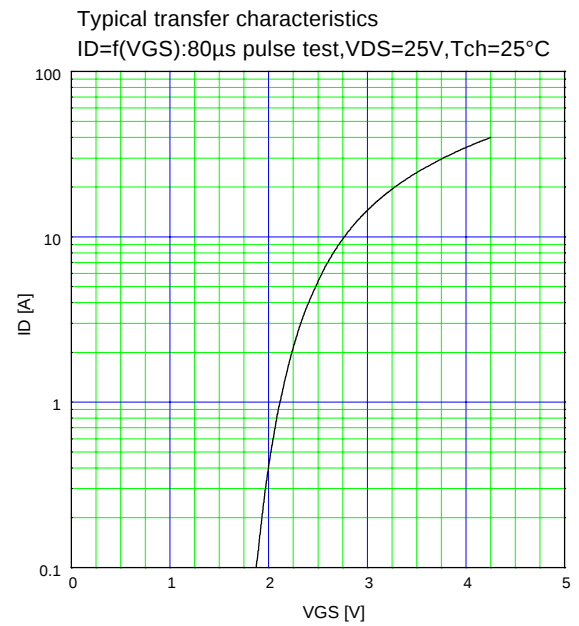
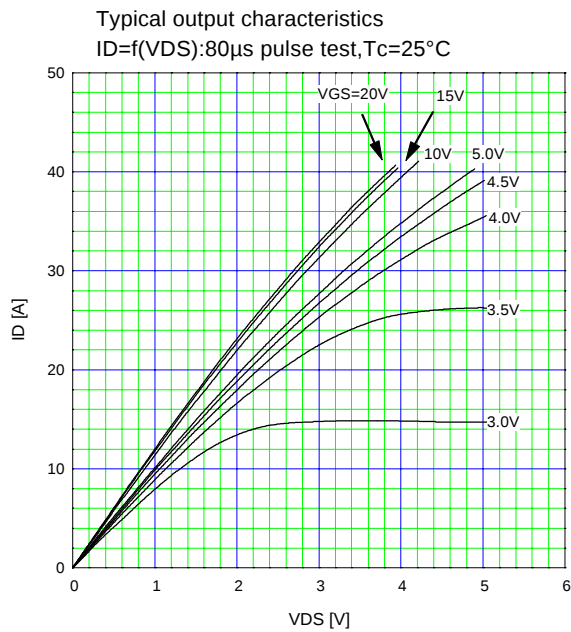
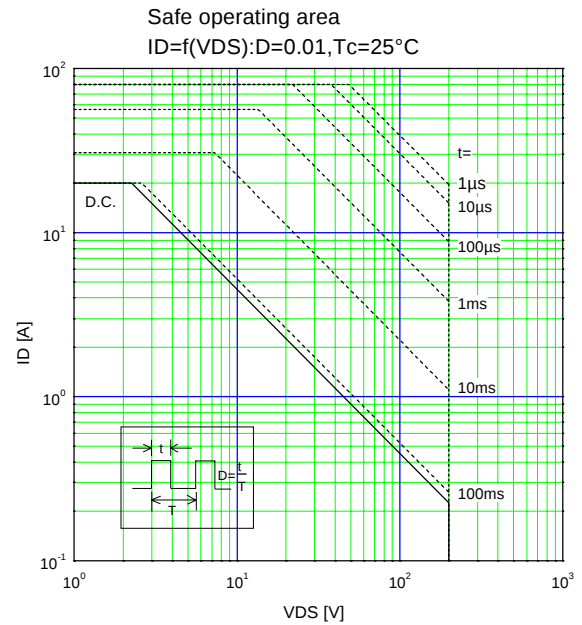
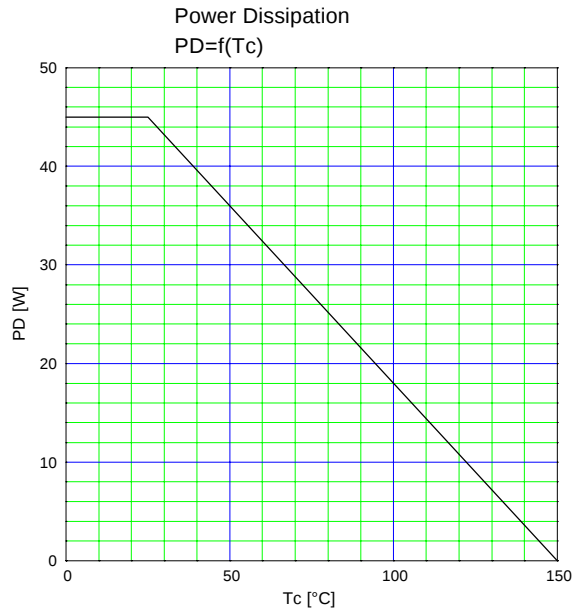
■ Equivalent circuit schematic**● Electrical characteristics (Tc =25°C unless otherwise specified)**

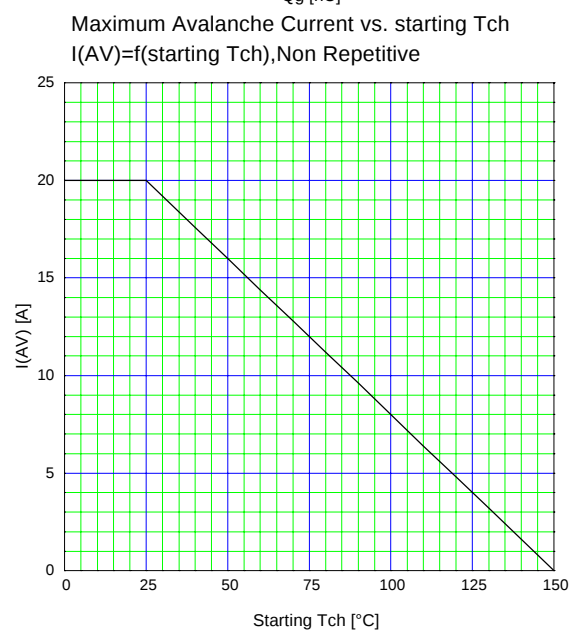
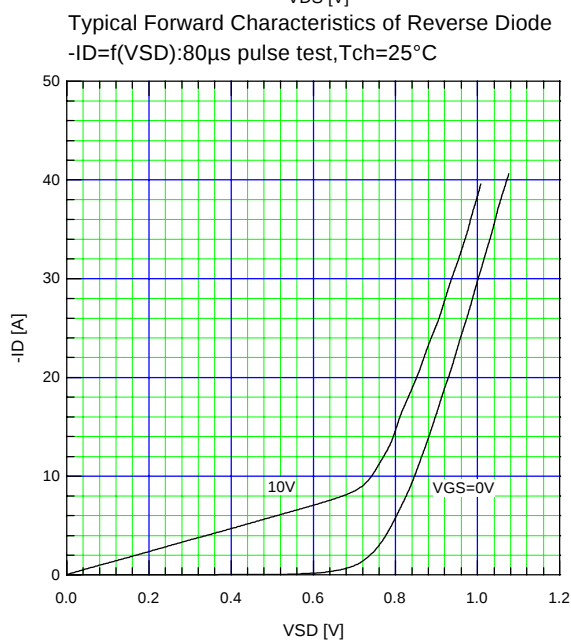
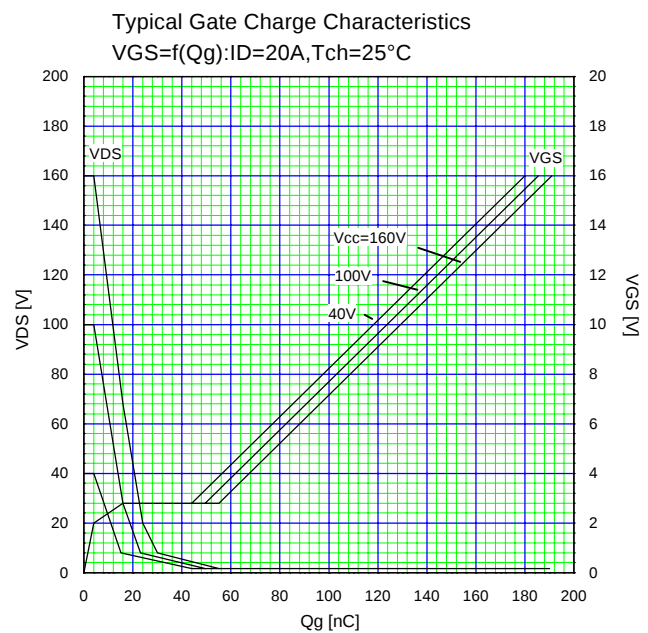
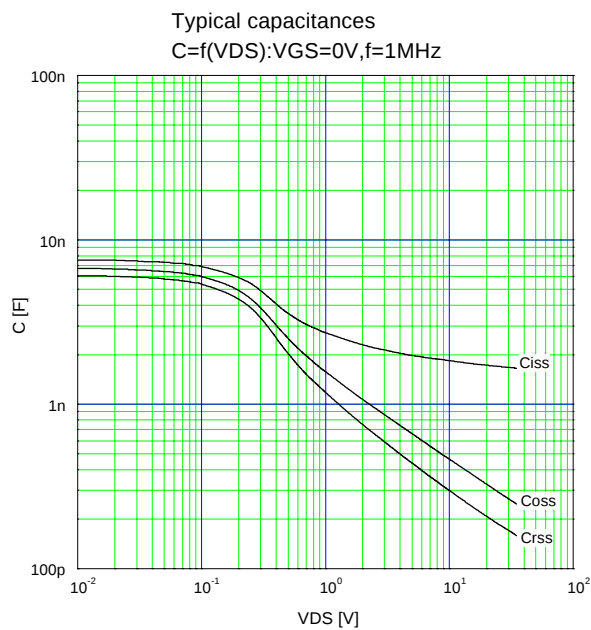
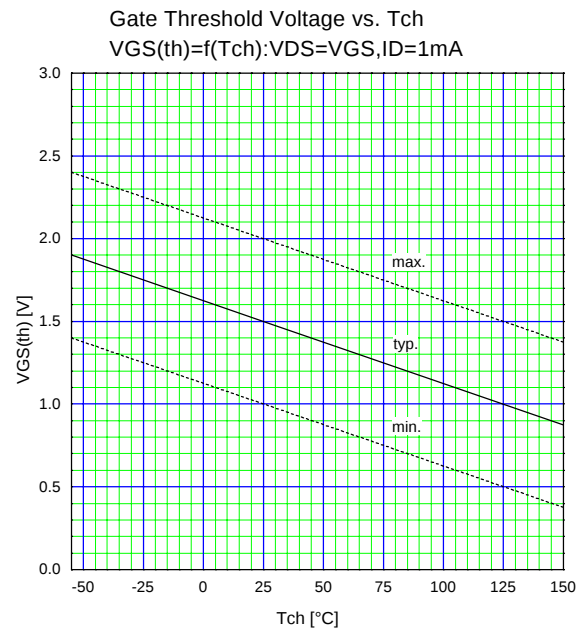
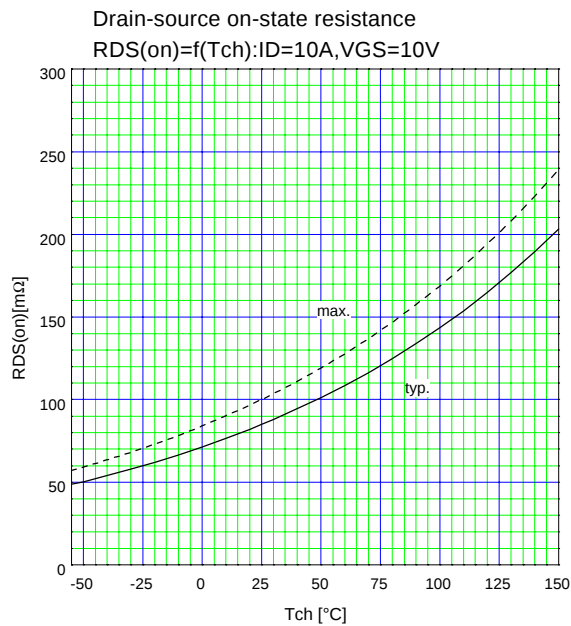
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D=1mA$ $V_{GS}=0V$	200			V
Gate threshold voltage	$V_{GS(th)}$	$I_D=1mA$ $V_{DS}=V_{GS}$	1.0	1.5	2.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=200V$ $V_{GS}=0V$ $T_{ch}=25^{\circ}C$		10	500	μA
		$T_{ch}=125^{\circ}C$		0.2	0.5	mA
Gate-source leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$		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	mΩ
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	pF
Reverse transfer capacitance	C_{rss}	$f=1MHz$		185	280	pF
Turn-on time t_{on}	$t_{d(on)}$	$V_{CC}=100V$ $I_D=20A$		10	15	ns
	t_r	$V_{GS}=10V$		45	70	ns
Turn-off time t_{off}	$t_{d(off)}$	$R_{GS}=10\Omega$		225	340	ns
	t_f			120	180	ns
Avalanche capability	I_{AV}	$L=100\mu H$ $T_{ch}=25^{\circ}C$	20			A
Diode forward on-voltage	V_{SD}	$I_F=20A$ $V_{GS}=0V$ $T_{ch}=25^{\circ}C$		0.93	1.40	V
Reverse recovery time	t_{rr}	$I_F=20A$ $V_{GS}=0V$		250		ns
Reverse recovery charge	Q_{rr}	$-di/dt=100A/\mu s$ $T_{ch}=25^{\circ}C$		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

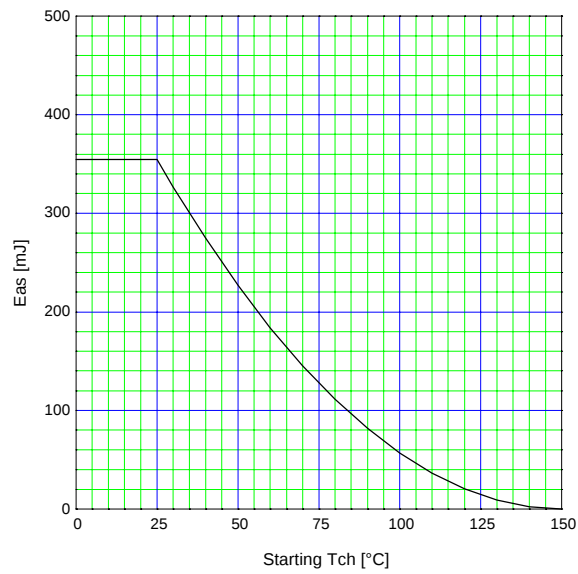
Characteristics





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

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

