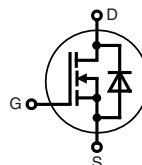


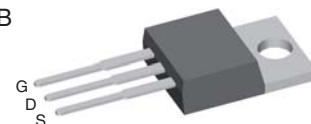
CoolMOS™ 1) Power MOSFET

N-Channel Enhancement Mode
Low $R_{DS(on)}$, High V_{DSS} MOSFET
Ultra low gate charge

$$\begin{aligned} I_{D25} &= 13 \text{ A} \\ V_{DSS} &= 600 \text{ V} \\ R_{DS(on) \text{ max}} &= 0.3 \Omega \end{aligned}$$



TO-220 AB



MOSFET			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^\circ\text{C}$	600	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	13	A
I_{D90}	$T_C = 90^\circ\text{C}$	9	A
E_{AS} E_{AR}	single pulse repetitive } $I_D = 4.4 \text{ A}; T_C = 25^\circ\text{C}$	290 0.44	mJ mJ
dV/dt	MOSFET dV/dt ruggedness $V_{DS} = 0 \dots 480 \text{ V}$	50	V/ns

Features

- fast CoolMOS™ 1) power MOSFET 4th generation
- High blocking capability
- Lowest resistance
- Avalanche rated for unclamped inductive switching (UIS)
- Low thermal resistance due to reduced chip thickness
- Enhanced total power density

Applications

- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating
- PDP and LCD adapter

Symbol	Conditions	Characteristic Values			
		(T _{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = 6.6 \text{ A}$		270	300	mΩ
$V_{GS(th)}$	$V_{DS} = V_{GS}; I_D = 0.44 \text{ mA}$	2.5	3	3.5	V
I_{DSS}	$V_{DS} = 600 \text{ V}; V_{GS} = 0 \text{ V}$			1	μA
	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		10		μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			100	nA
C_{iss} C_{oss}	$V_{GS} = 0 \text{ V}; V_{DS} = 100 \text{ V}$ $f = 1 \text{ MHz}$		1100 60		pF pF
Q_g Q_{gs} Q_{gd}	$V_{GS} = 0 \text{ to } 10 \text{ V}; V_{DS} = 400 \text{ V}; I_D = 6.6 \text{ A}$		20 5 7.6	30	nC nC nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}; V_{DS} = 400 \text{ V}$ $I_D = 6.6 \text{ A}; R_G = 4.3 \Omega$		10 5 40 5		ns ns ns ns
R_{thJC}				0.95	K/W

¹⁾ CoolMOS™ is a trademark of Infineon Technologies AG.

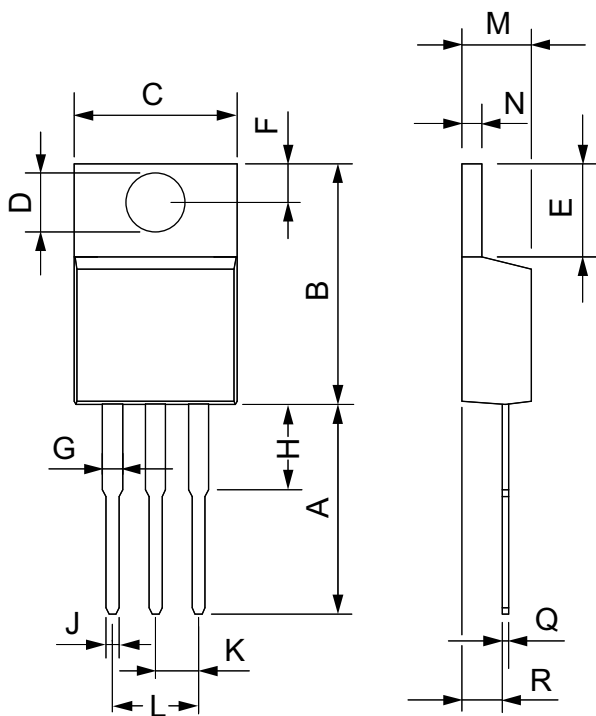
Source-Drain Diode

Symbol	Conditions	Characteristic Values			
		(T _{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
I _S	V _{GS} = 0 V			6.6	A
V _{SD}	I _F = 6.6 A; V _{GS} = 0 V		0.9	1.2	V
t _{rr}	I _F = 6.6 A; -di _F /dt = 100 A/μs; V _R = 400 V		300		ns
Q _{RM}			3.9		μC
I _{RM}			26		A

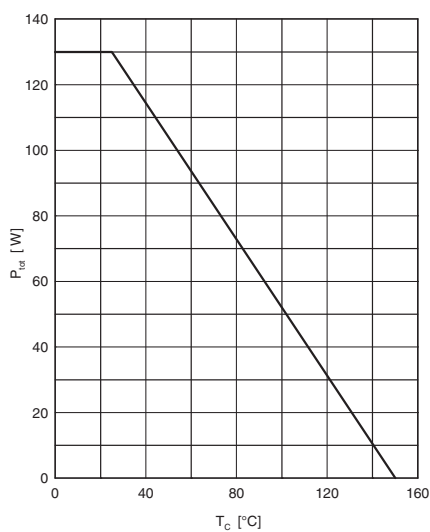
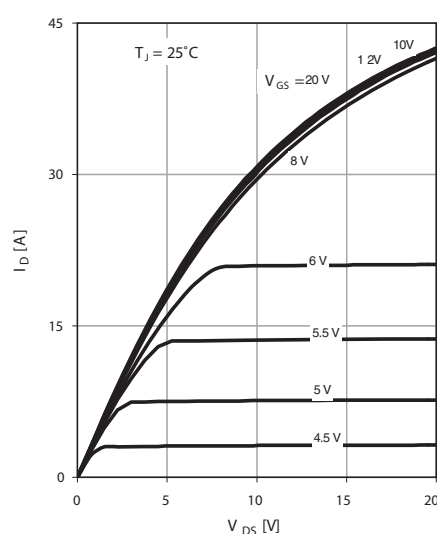
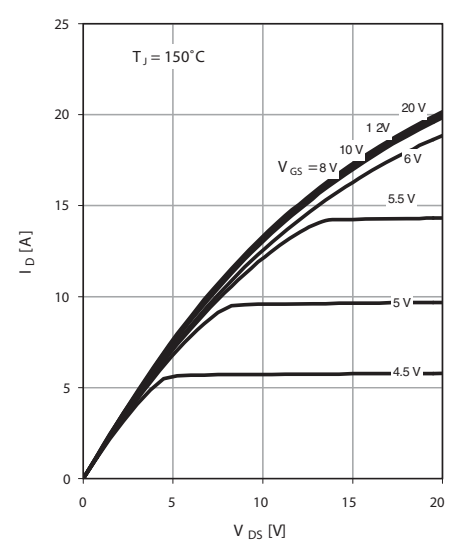
Component

Symbol	Conditions	Maximum Ratings			
T _{VJ}	operating		-55...+150		°C
T _{stg}			-55...+150		°C
M _d	mounting torque	TO-247	0.8 ... 1.2		Nm
		TO-220	0.4 ... 0.6		Nm

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
R _{thCH}	with heatsink compound	TO-247	0.25		K/W
		TO-220	0.50		K/W
Weight	TO-247		6		g
	TO-220		2		g

TO-220 AB Outline


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	12.70	13.97	0.500	0.550
B	14.73	16.00	0.580	0.630
C	9.91	10.66	0.390	0.420
D	3.54	4.08	0.139	0.161
E	5.85	6.85	0.230	0.270
F	2.54	3.18	0.100	0.125
G	1.15	1.65	0.045	0.065
H	2.79	5.84	0.110	0.230
J	0.64	1.01	0.025	0.040
K	2.54	BSC	0.100	BSC
M	4.32	4.82	0.170	0.190
N	1.14	1.39	0.045	0.055
Q	0.35	0.56	0.014	0.022
R	2.29	2.79	0.090	0.110


Fig. 1 Power dissipation

Fig. 2 Typ. output characteristics

Fig. 3 Typ. output characteristics

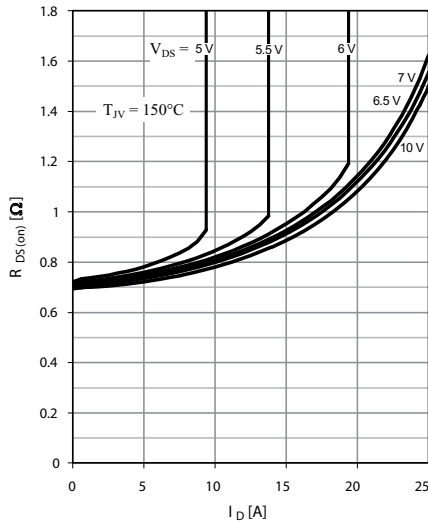


Fig. 4 Typ. drain-source on-state resistance characteristics of IGBT

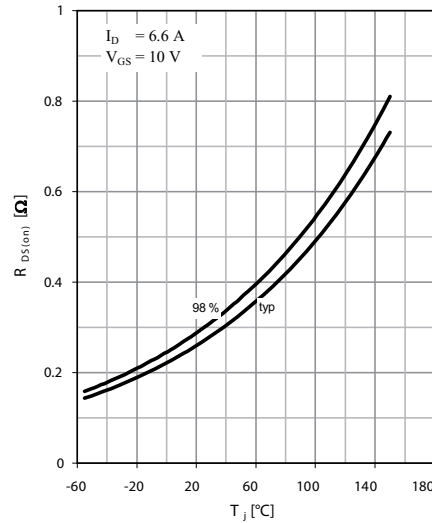


Fig. 5 Drain-source on-state resistance

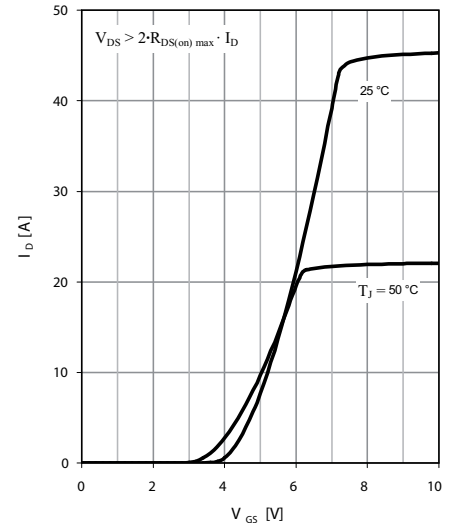


Fig. 6 Typ. transfer characteristics

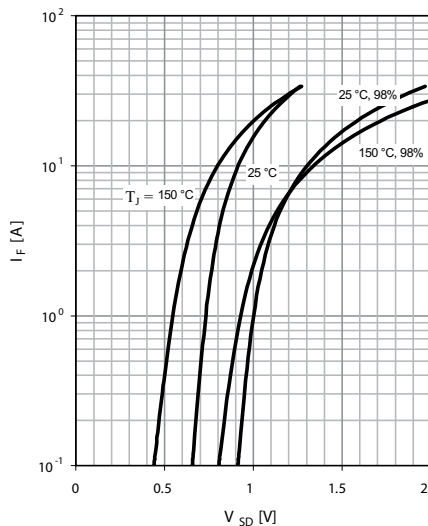


Fig. 7 Forward characteristic of reverse diode

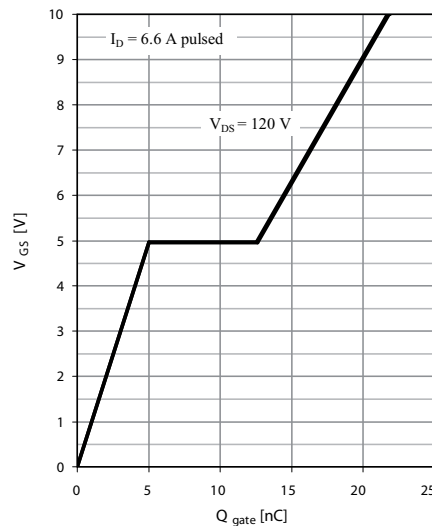


Fig. 8 Typ. gate charge

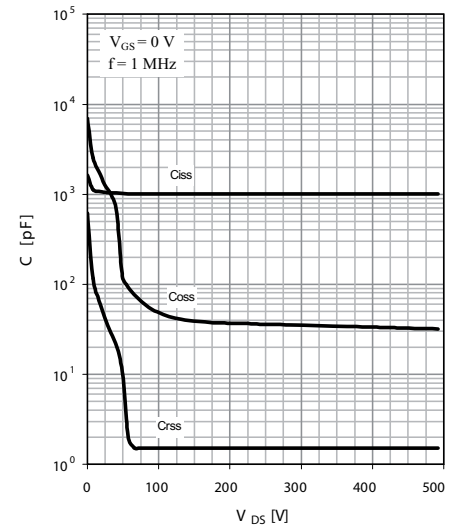


Fig. 9 Typ. capacitances

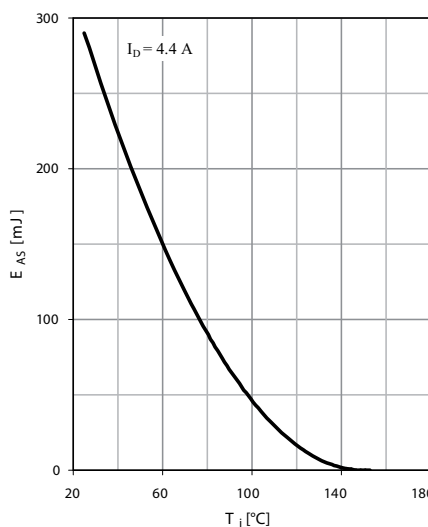


Fig. 10 Avalanche energy

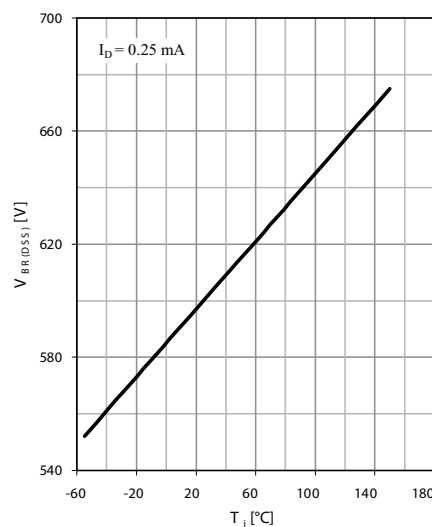


Fig. 11 Drain-source breakdown voltage

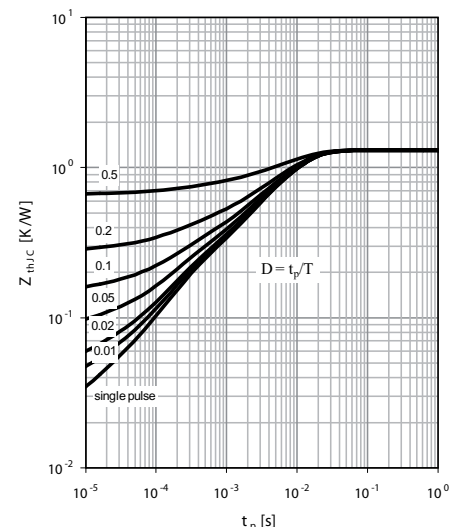


Fig. 12 Max. transient thermal impedance

IXYS reserves the right to change limits, test conditions and dimensions.