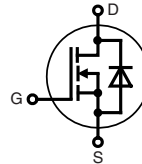


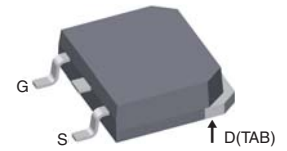
CoolMOS™¹⁾ Power MOSFET

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

$$\begin{aligned}
 I_{D25} &= 66 \text{ A} \\
 V_{DSS} &= 600 \text{ V} \\
 R_{DS(on) \text{ max}} &= 0.045 \Omega
 \end{aligned}$$



TO-268 AA



MOSFET			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^{\circ}\text{C}$	600	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^{\circ}\text{C}$	66	A
I_{D90}	$T_C = 90^{\circ}\text{C}$	46	A
E_{AS} E_{AR}	single pulse repetitive } $I_D = 11 \text{ A}; T_C = 25^{\circ}\text{C}$	1950 3	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

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

Symbol	Conditions	Characteristic Values			
		$(T_{VJ} = 25^{\circ}\text{C}, \text{ unless otherwise specified})$			
		min.	typ.	max.	
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = 44 \text{ A}$		40	45	mΩ
$V_{GS(th)}$	$V_{DS} = V_{GS}; I_D = 3 \text{ mA}$	2.5	3	3.5	V
I_{DSS}	$V_{DS} = 600 \text{ V}; V_{GS} = 0 \text{ V}$			10	μA
	$T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		50		μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			100	nA
C_{iss} C_{oss}	$V_{GS} = 0 \text{ V}; V_{DS} = 100 \text{ V}$ $f = 1 \text{ MHz}$		6800 320		pF pF
Q_g Q_{gs} Q_{gd}	$V_{GS} = 0 \text{ to } 10 \text{ V}; V_{DS} = 400 \text{ V}; I_D = 44 \text{ A}$		150 35 50	190	nC nC nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}; V_{DS} = 400 \text{ V}$ $I_D = 44 \text{ A}; R_G = 3.3 \Omega$		30 20 100 10		ns ns ns ns
R_{thJC}				0.23	K/W

Source-Drain Diode

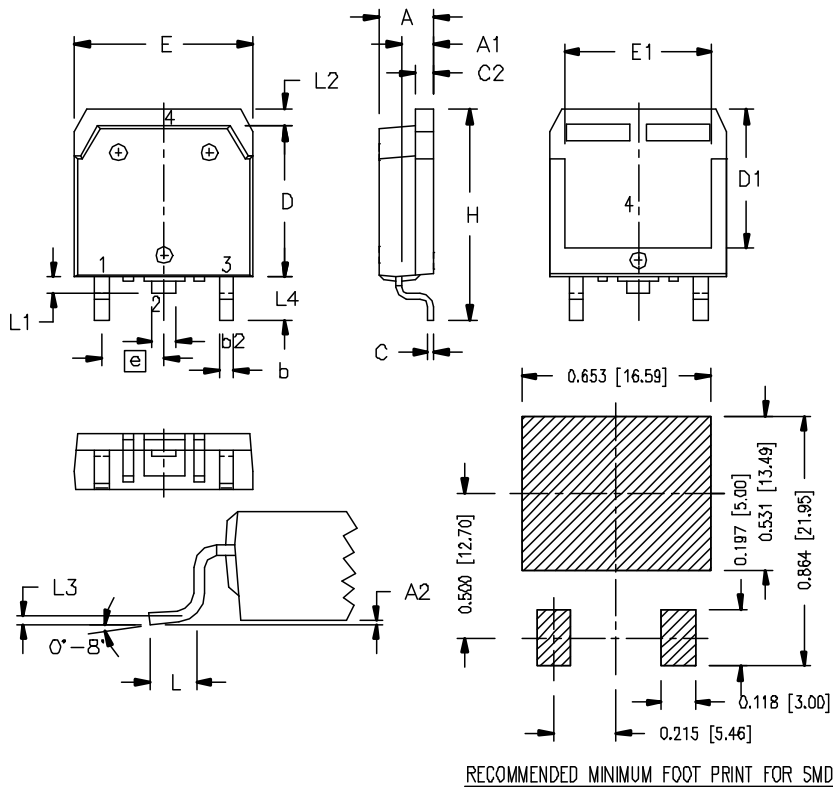
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			44 A
V_{SD}	$I_F = 44\text{ A}; V_{GS} = 0\text{ V}$	0.9	1.2	V
t_{rr}	$I_F = 44\text{ A}; -di_F/dt = 100\text{ A}/\mu\text{s}; V_R = 400\text{ V}$	600		ns
Q_{RM}		17		μC
I_{RM}		60		A

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}	operating	-55...+150	$^{\circ}\text{C}$
T_{stg}		-55...+150	$^{\circ}\text{C}$

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Weight			6	g

TO-247 AD Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
e	.215 BSC		5.45 BSC	
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010	BSC	0.25	BSC
L4	.150	.161	3.80	4.10

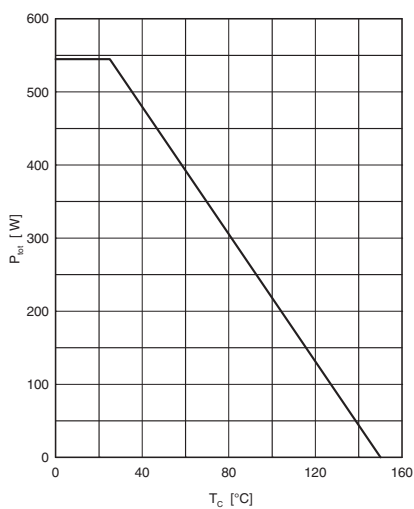


Fig. 1 Power dissipation

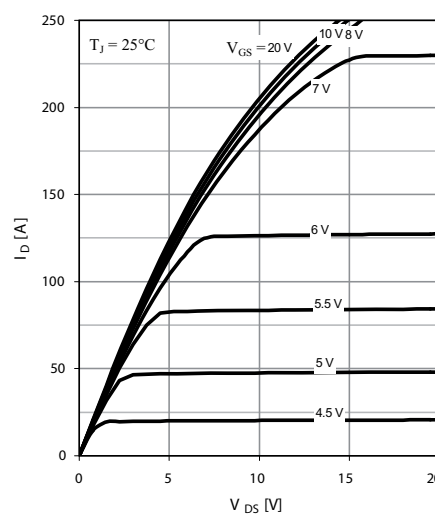


Fig. 2 Typ. output characteristics

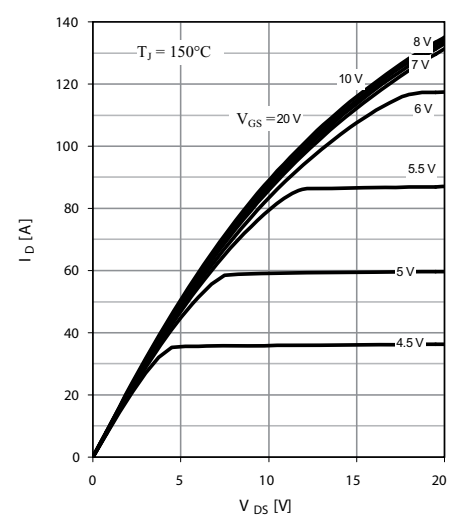


Fig. 3 Typ. output characteristics

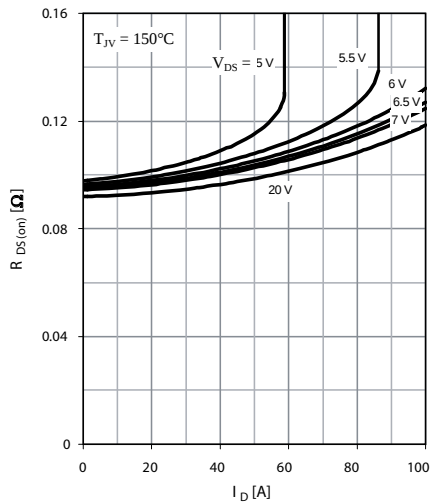


Fig. 4 Typ. drain-source on-state resistance characteristics of IGBT

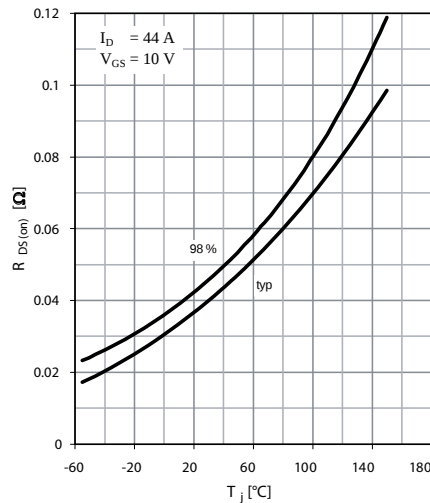


Fig. 5 Drain-source on-state resistance

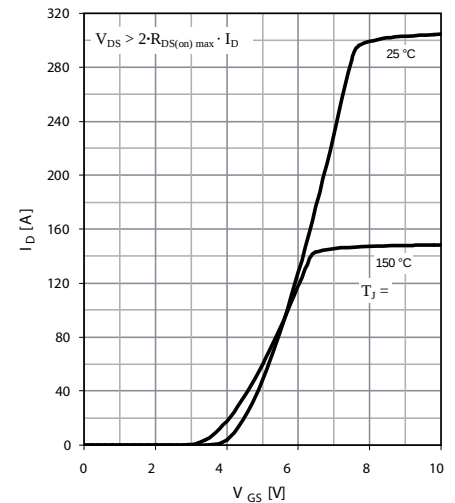


Fig. 6 Typ. transfer characteristics

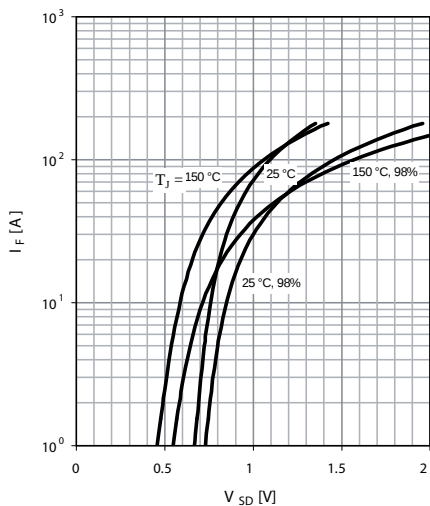


Fig. 7 Forward characteristic of reverse diode

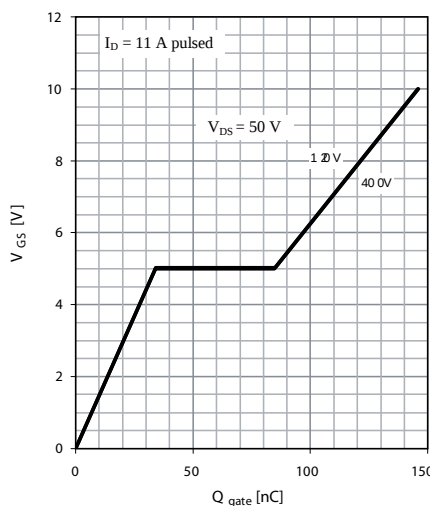


Fig. 8 Typ. gate charge

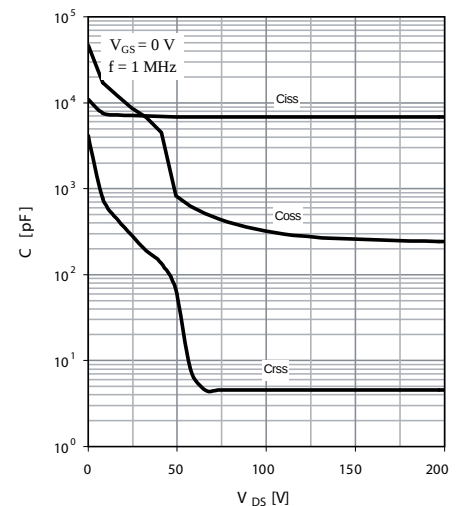


Fig. 9 Typ. capacitances

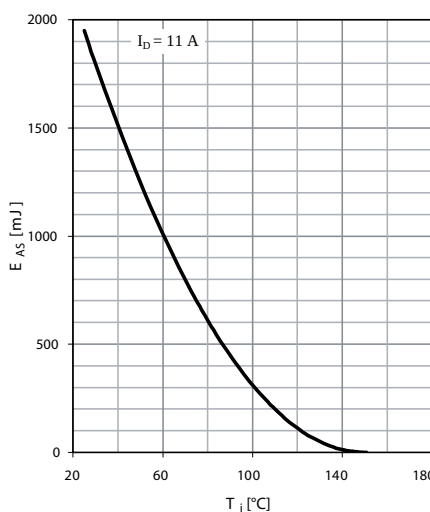


Fig. 10 Avalanche energy

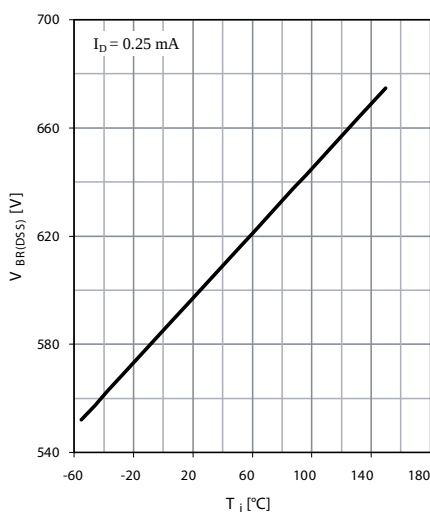


Fig. 11 Drain-source breakdown voltage

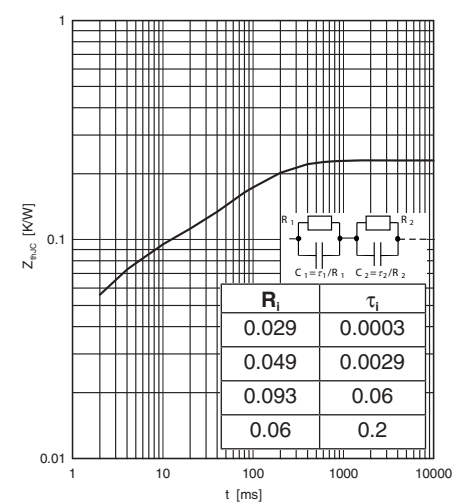


Fig. 12 Max. transient thermal impedance

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

© 2009 IXYS All rights reserved

20090209e



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.