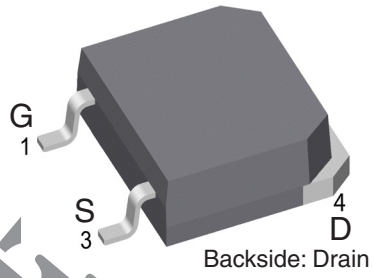
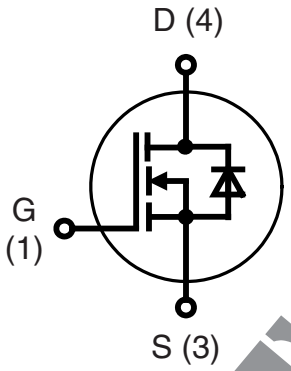
SiC Power MOSFET

I_{D25} = 90 A
V_{DSS} = 1200 V
$R_{DS(on)\ max}$ = 34 mΩ

Single MOSFET

Part number
MCB60I1200TZ





Features / Advantages:
- High speed switching with low capacitances
- High blocking voltage with low $R_{DS(on)}$
- Easy to parallel and simple to drive
- Avalanche ruggedness
- Resistant to latch-up

Applications:
- Solar inverters
- High voltage DC/DC converters
- Motor drives
- Switch mode power supplies
- UPS
- Battery chargers
- Induction heating

Package: TO-268AA (D3Pak-HV)
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- High creepage distance between terminals

MOSFET				Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
V_{DSS}	*drain source breakdown voltage*					1200	V
V_{GSM}	*max transient gate source voltage*			-10		+25	V
V_{GS}	*continous gate source voltage*	recommended operational value		-5		+20	V
I_{D25}	*drain current*		T_C = 25°C			90	A
I_{D80}			T_C = 80°C			70	A
I_{D100}			T_C = 100°C			60	A
R_{DSon}	*static drain source on resistance*	I_D = 50 A; V_{GS} = 20 V	T_{VJ} = 25°C		25	34	mΩ
			T_{VJ} = 150°C		43		mΩ
			T_{VJ} = 175°C		52		mΩ
$V_{GS(th)}$	*gate threshold voltage*	I_D = 15 mA; V_{DS} = 10 V	T_{VJ} = 25°C	2.0	2.6	4.0	V
			T_{VJ} = 175°C		2.1		V
I_{DSS}	*drain source leakage current*	V_{DS} = 1200 V; V_{GS} = 0 V	T_{VJ} = 25°C		2	100	µA
I_{GSS}	*gate source leakage current*	V_{DS} = 0 V; V_{GS} = 20 V	T_{VJ} = 25°C			0.6	µA
R_G	*internal gate resistance*					1.1	Ω
C_{iss}	*input capacitance*	V_{DS} = 1000 V; V_{GS} = 0 V; f = 1 MHz	T_{VJ} = 25°C		2790		pF
C_{oss}	*output capacitance*				220		pF
C_{rss}	*reverse transfer (Miller) capacitance*				15		pF
Q_g	*total gate charge*	V_{DS} = 800 V; I_D = 50 A; V_{GS} = -5/20 V	T_{VJ} = 25°C		160		nC
Q_{gs}	*gate source charge*				46		nC
Q_{gd}	*gate drain (Miller) charge*				50		nC
$t_{d(on)}$	*turn-on delay time*	Inductive switching V_{DS} = 800 V; I_D = 50 A V_{GS} = -5/20 V; R_G = 2 Ω (external)	T_{VJ} = 25°C				ns
t_r	*current rise time*						ns
$t_{d(off)}$	*turn-off delay time*						ns
t_f	*current fall time*						ns
E_{on}	*turn-on energy per pulse*						mJ
E_{off}	*turn-off energy per pulse*						mJ
$E_{rec(off)}$	*reverse recovery losses at turn-off*						mJ
R_{thJC}	*thermal resistance junction to case*					0.27	K/W
R_{thJH}	*thermal resistance junction to heatsink*	with heatsink compound; IXYS test setup [1]			0.38		K/W

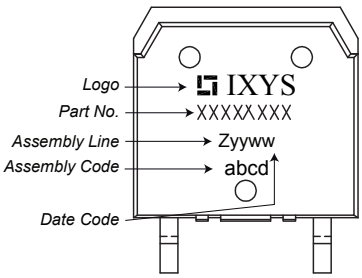
[1] part is mounted directly on heat sink

Source-Drain Diode				Ratings			
Symbol	Definitions	Conditions		min.	typ.	max.	
I_{S25}	*continuous source current*	V_{GS} = -5 V	T_C = 25°C				A
I_{S100}			T_C = 80°C				A
V_{SD}	*forward voltage drop*	I_F = 25 A; V_{GS} = -5 V	T_{VJ} = 25°C		4.0		V
			T_{VJ} = 175°C		3.5		V
t_{rr}	*reverse recovery time*	V_{GS} = -5 V; I_F = 50 A V_R = 800 V; -di_F/dt = 1000 A/µs	T_{VJ} = 25°C		45		ns
Q_{RM}	*reverse recovery charge (intrinsic diode)*				410		nC
I_{RM}	*max. reverse recovery current*				13.5		A

Package TO-268AA (D3Pak-HV)

Symbol	Definitions	Conditions		Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal					A
T_{stg}	*storage temperature*			-40		150	°C
T_{op}	*operation temperature*			-40		150	°C
T_{VJ}	*virtual junction temperature*			-40		175	°C
Weight					4		g
F_C	*mounting fource with clip*			20		120	Nm
$d_{Spp/App}$	*creepage distance on surface / striking distance through air*		*terminal to terminal*	9.4			mm
$d_{Spb/Apb}$			*terminal to backside*	5.6			mm

Product Marking



Part number

M = Mosfet
C = SiC MOSFET
B = Generation 2
60 = Current Rating [A]
I = Single Mosfet
1200 = Reverse Voltage [V]
TZ = TO-268AA (D3Pak) (2HV)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MCB60I1200TZ	MCB60I1200TZ	Tube	30	515522