Features

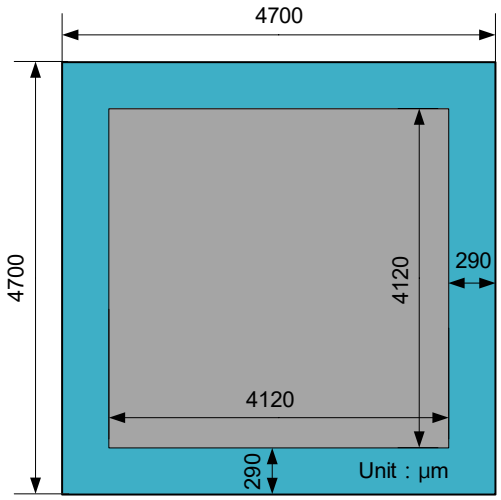
- Zero Forward Recovery Voltage
- Zero Reverse Recovery Current
- Excellent Surge Current Capability
- Temperature Independent Switching
- Positive Temperature Coefficient on V_F
- High Frequency Operation

Part NO.		MS2D60120B
V_{RRM}	=	1200 V
$I_{F(AVG)}$	=	60 A
Q_C	=	350 nC

Wafer Parameters

Parameter	Typ.	Unit
Die Size	4700 x 4700	μm
Anode Pad Opening	4120 x 4120	μm
Wafer Diameter	150	mm
Thickness	150 ± 10	μm
Anode Metalization (Al)	4	μm
Cathode Metalization (Ti/Ni/Ag)	0.1/0.5/1	μm
Grossdie	676	

Chip Outline (unit: μm)



Maximum ratings

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		1200	V
$I_{F(AVG)}$	Average forward current	T_c=150°C	60*	A
I_{FSM}	Non-Repetitive forward surge current	T_c=25°C, t_p=10ms, Half Sine Wave	652	A
P_{tot}	Power dissipation	T_c=25°C T_c=110°C	625* 270*	W
T_j	Operating junction temperature		-55~175	°C
T_{stg}	Storage temperature		-55~175	°C

* Assumes thermal resistance of 1.2°C/W or less

Electrical Characteristics

Static Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	T_j=25°C	1200			V
V_F	Diode forward voltage	I_F=60A T_j=25°C I_F=60A T_j=135°C I_F=60A T_j=175°C		1.38 1.60 1.97	1.65 2.08 2.75	V
I_R	Reverse current	V_R=1200V T_j=25°C V_R=1200V T_j=175°C		5 20	50 400	μA

AC Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=800V T_j=25°C $Q_C = \int_0^{V_R} C(V)dV$		350		nC
C	Total capacitance	V_R=1V f=1MHz V_R=400V f=1MHz V_R=800V f=1MHz		4000 329 235		pF
E_C	Capacitance stored energy	V_R=800V		99		μJ

Typical Performance

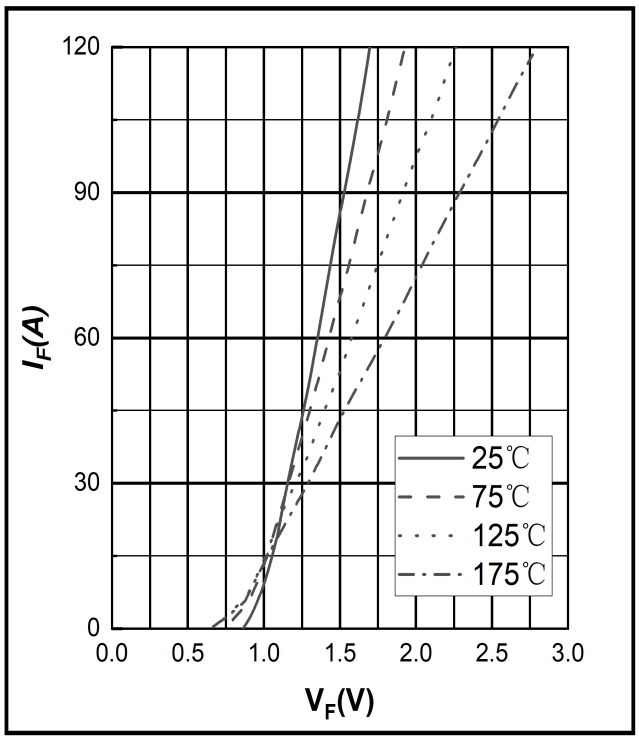


Figure 1. Forward characteristics

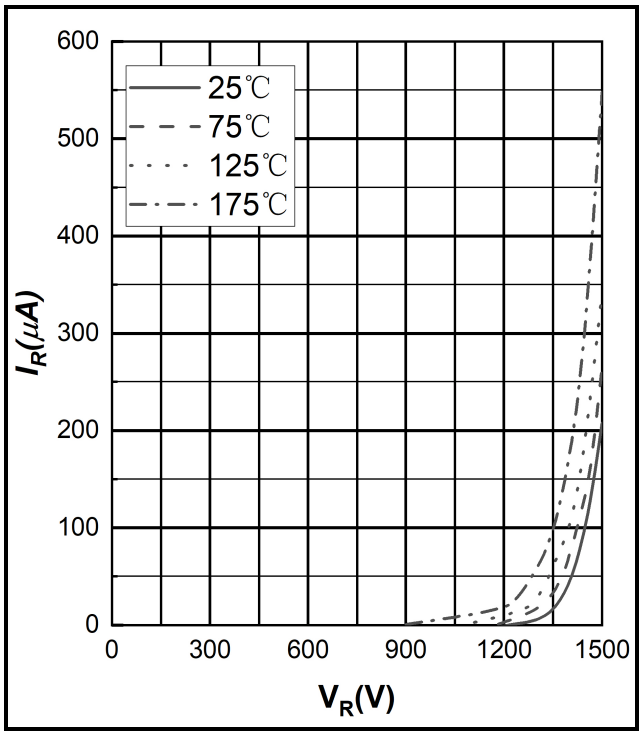


Figure 2. Reverse characteristics

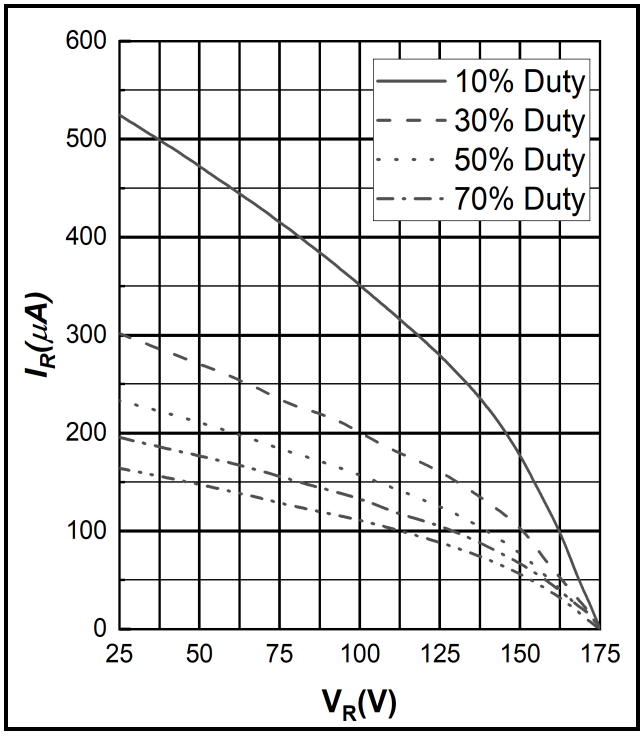


Figure 3. Current derating

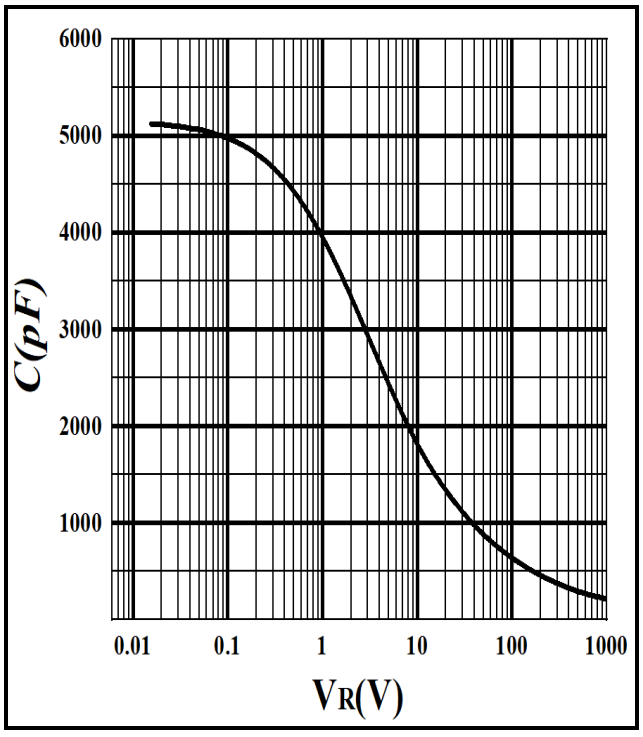


Figure 4. Capacitance vs. reverse voltage