

Product Summary

V_{RRM}	650 V
$I_F(T_C=150^{\circ}\text{C})$	4.0 A
$V_F(T_J=25^{\circ}\text{C})$	1.3 V



Part Number	Marking
X1D04065B	4065B

Features

- Low capacitive charge
- Extremely low switching loss
- Low leakage current
- High surge current capability
- Industrial standard quality and reliability
- Halogen free, RoHs compliant

Applications

- PFC boost circuit
- Switch mode power supplies
- Power Inverter
- Other high frequency rectifiers

Mechanical Data

- Case:SMB Plastic Package
- Polarity:Color band denotes cathode end

Maximum Ratings(at $T_C = 25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}		650	V
Surge Peak Reverse Voltage	V_{RSM}		650	V
DC Peak Reverse Voltage	V_{DC}		650	V
Continuous Forward Current	I_F	$T_C=150^{\circ}\text{C}$	4.0	A
Repetitive Peak Forward Surge Current at 10ms Half Sine Wave	I_{FRM}	$T_C=25^{\circ}\text{C}$	23	A
		$T_C=110^{\circ}\text{C}$	15	A
Non-Repetitive Forward Surge Current at 10ms Half Sine Wave	I_{FSM}	$T_C=25^{\circ}\text{C}$	36	A
		$T_C=110^{\circ}\text{C}$	28	A
i^2dt value	$\int i^2 dt$	$T_C=25^{\circ}\text{C}$	5.4	A^2s
		$T_C=110^{\circ}\text{C}$	3.3	A^2s
Power dissipation	P_{tot}	$T_C=25^{\circ}\text{C}$	11	W
		$T_C=110^{\circ}\text{C}$	5	W
Operating junction temperature range	T_J		-55~175	$^{\circ}\text{C}$
Storage temperature range	T_{stg}		-55~150	$^{\circ}\text{C}$

Electrical Characteristics (Tj=25°C unless otherwise specified)

Static Characteristics

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Breakdown Voltage	V_B	Tj=150°C It=50uA	650	720		V
Forward voltage	V_F	Tj=25°C IF=4.0A		1.3	1.5	V
		Tj=175°C IF=4.0A		1.5		
Reverse current	I_R	Tj=25°C VR=650V		2.0	50	uA
		Tj=175°C VR=650V		20.0	150	

AC Characteristics

Parameter	Symbol	Test Conditions	Value	Unit
Total Capacitive Charge	Q_C	VR=400V Tj=25°C $Q_C = \int_0^{VR} C(V) dV$	Typ. 10.6	nC
Total Capacitance	C	Tj=25°C VR=0V f=1MHz VR=200V VR=400V	Typ. 203 21 16	pF

Thermal Characteristics

Parameter	Symbol	Value	Unit
Typ Thermal resistance from junction to case	$R_{th(JC)}$	14	°C/W

Typical Characteristics

Fig 1. Current Derating

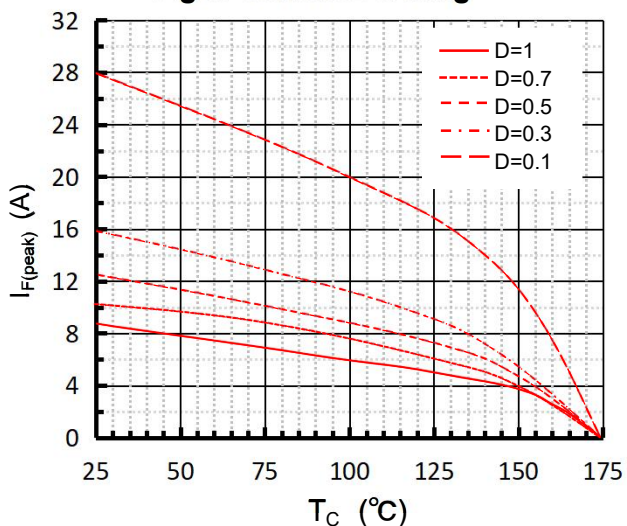
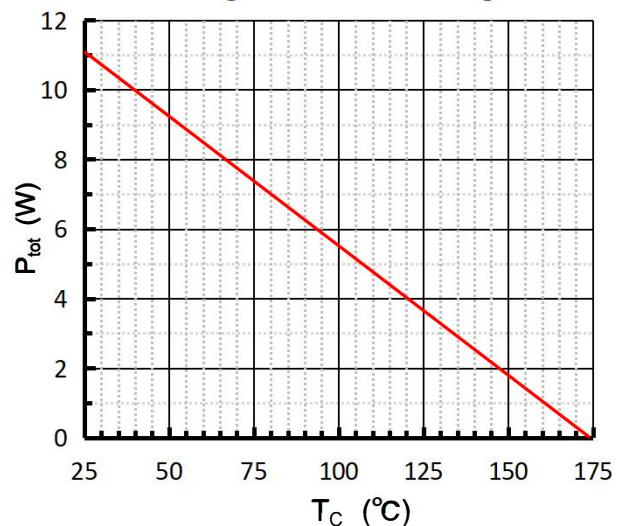


Fig 2. Power Derating



Typical Characteristics

Fig 3. Forward Characteristics

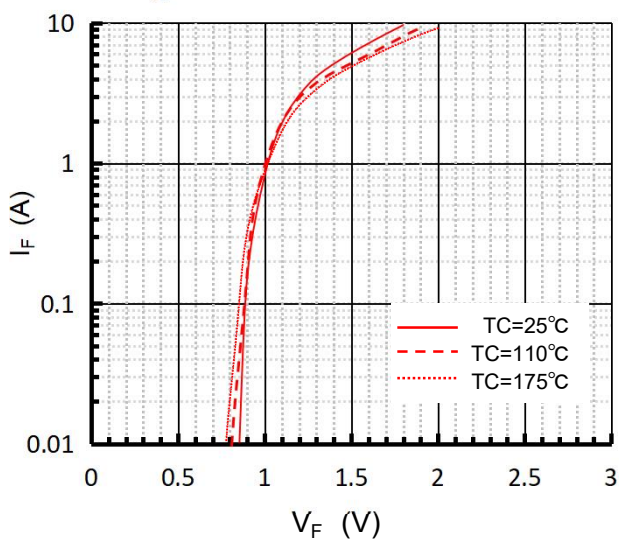


Fig 4. Reverse Characteristics

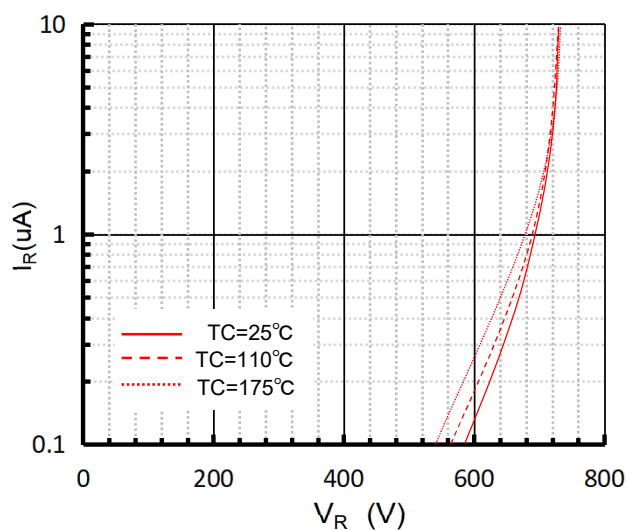


Fig 5. Capacitance vs. Reverse Voltage

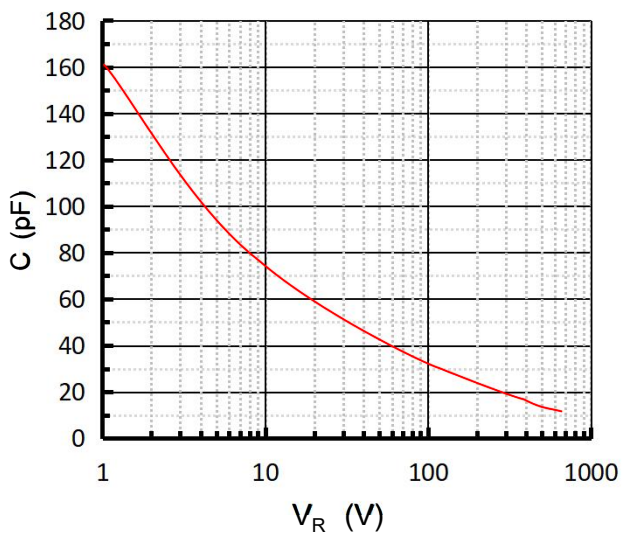


Fig 6. Reverse Charge vs. Reverse Voltage

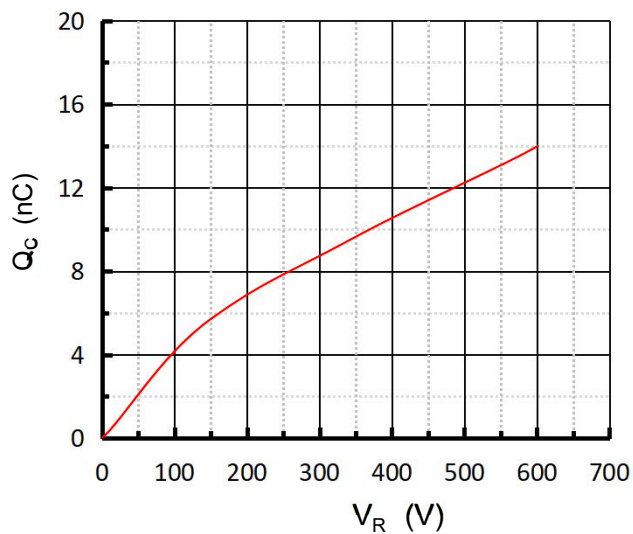


Fig 7. Typical Capacitance Stored Energy

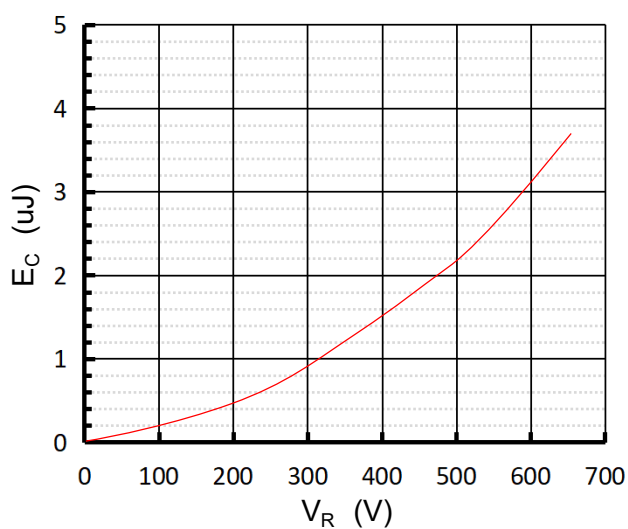
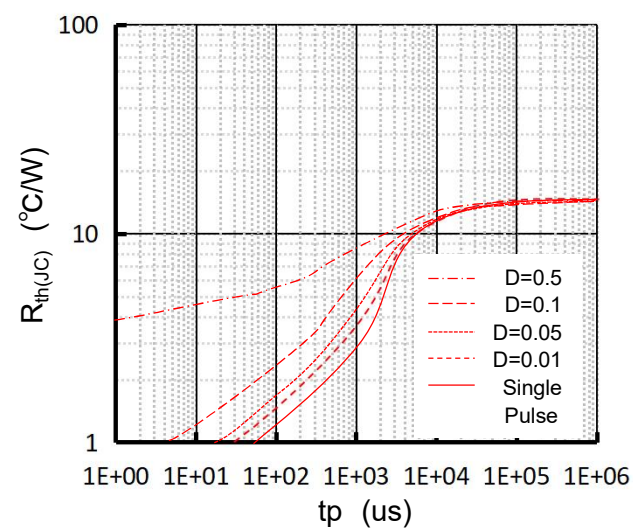


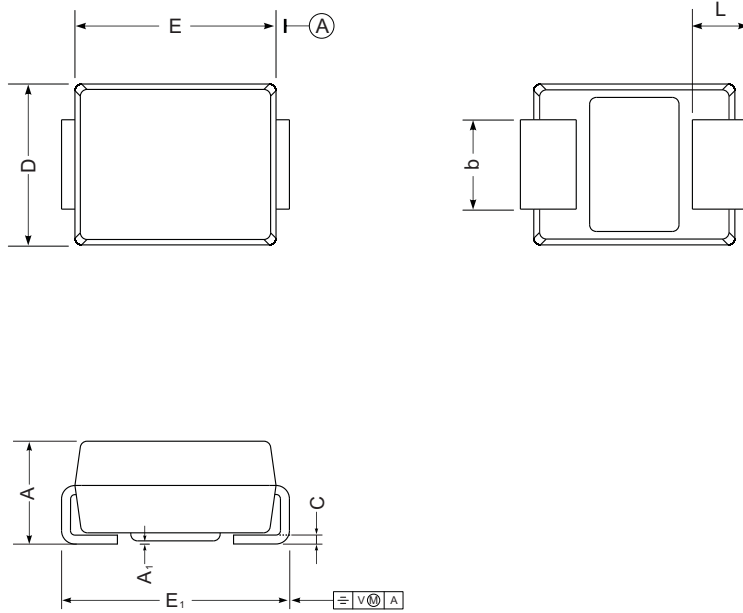
Fig 8. Transient Thermal Impandance



PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMB



SMB mechanical data

UNIT		A	E	D	E ₁	A ₁	L	C	b
mm	max	2.44	4.70	3.94	5.59	0.20	1.5	0.305	2.2
	min	2.13	4.06	3.3	5.08	0.05	0.8	0.152	1.9
mil	max	96	185	155	220	7.9	59	12	87
	min	84	160	130	200	2.0	32	6	75

The recommended mounting pad size

