

Features

- New Thin Wafer Technology
- Low Forward Voltage Drop
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on V_F
- Temperature-independent Switching
- Compliant to Halogen-free

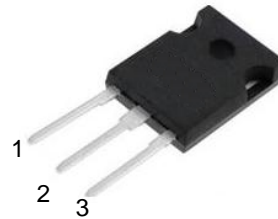
V_{RRM}	=	650	V
$I_F (T_C \leq 135^\circ C)$	=	30	A**
Q_C	=	32	nC*

*Per Leg, **Per Device

Benefits

- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

Package



TO-247-3

Applications

- Switch mode power supplies (SMPS)
- Uninterruptible power supplies
- Motor drive, PV Inverter, Wind Power Station



Part Number	Package	Marking
AS4D030065P2	TO-247-3	AS4D030065P2

Maximum Ratings

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	$T_C=25^{\circ}C$	650	V
V_{RSM}	Non-repetitive peak reverse voltage	$T_C=25^{\circ}C$	650	V
I_F	Continuous forward current	$T_C \leq 135^{\circ}C$	15*/30**	A
I_{FSM}	Non-Repetitive forward surge current	$T_C=25^{\circ}C$, $t_p=8.3ms$, Half Sine Pulse	150*	A
P_{tot}	Power dissipation	$T_C=25^{\circ}C$	187*/374**	W
T_j	Operating junction temperature		-55~175	$^{\circ}C$
T_{stg}	Storage temperature		-55~175	$^{\circ}C$
T_{sold}	Soldering temperature		260	$^{\circ}C$

Electrical Characteristics

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_F	Diode forward voltage	$I_F=15A, T_j=25^{\circ}C$ $I_F=15A, T_j=175^{\circ}C$		1.32* 1.45*	1.5* 1.7*	V
I_R	Reverse current	$V_R=650V, T_j=25^{\circ}C$ $V_R=650V, T_j=175^{\circ}C$			100* 400*	μA
Q_C	Total capacitive charge	$V_R=400V, I_F=15A$ $di/dt=200A/us, T_j=25^{\circ}C$		32*		nC
C	Total capacitance	$V_R=0.1V, f=1MHz, T_j=25^{\circ}C$ $V_R=200V, f=1MHz, T_j=25^{\circ}C$ $V_R=400V, f=1MHz, T_j=25^{\circ}C$		769* 82* 59*		pF

Thermal Characteristics

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
$R_{th(jc)}$	Thermal resistance from junction to case		0.8*/0.4**		$^{\circ}C/W$
$R_{th(ja)}$	Thermal resistance from junction to ambient		80		$^{\circ}C/W$

*Per Leg, **Per Device

Typical Performance (Per Leg)

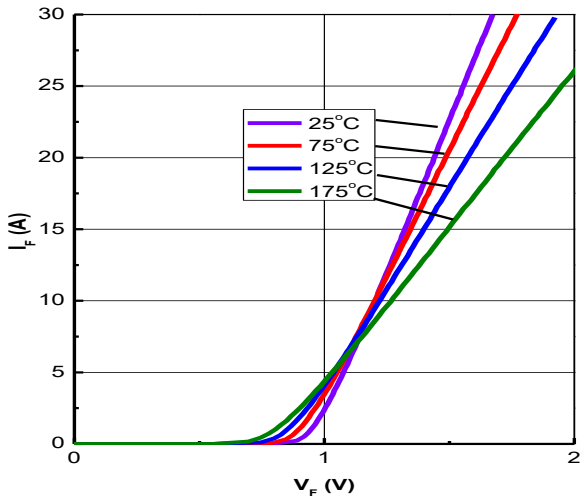


Figure 1. Forward Characteristics

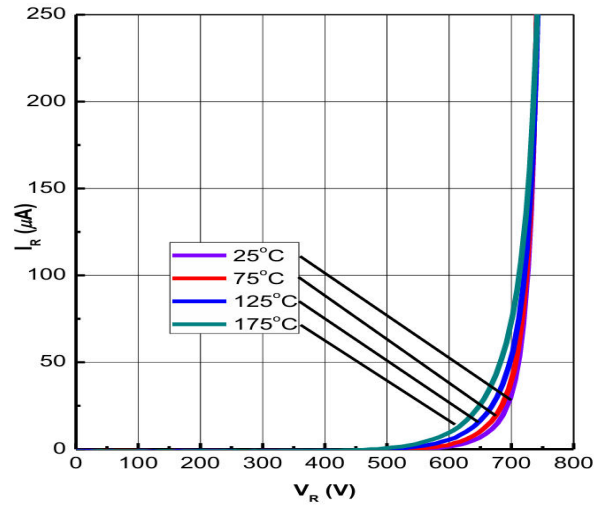


Figure 2. Reverse Characteristics

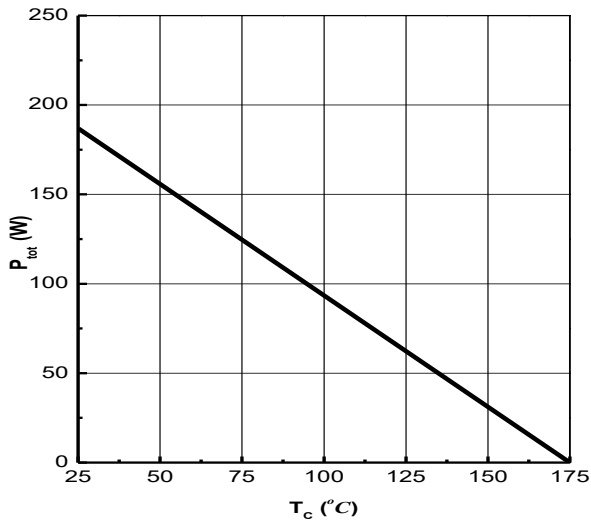


Figure 3. Power Derating

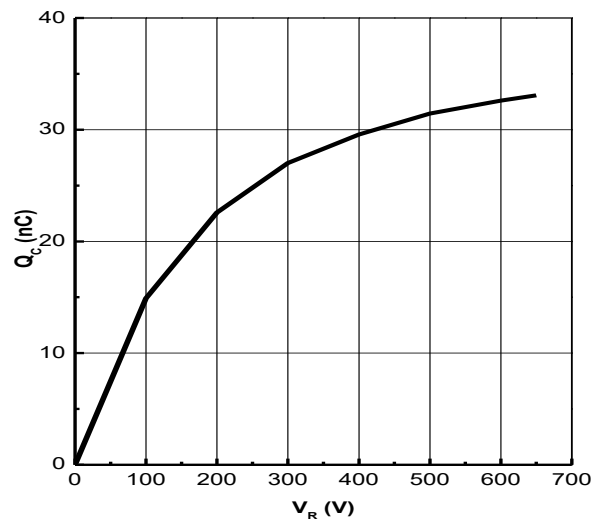


Figure 4. Total Capacitive Charge vs. Reverse Voltage

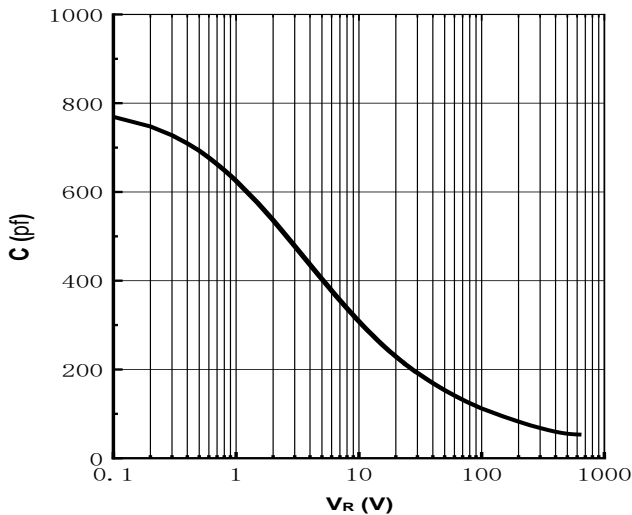


Figure 5. Total Capacitance vs. Reverse Voltage

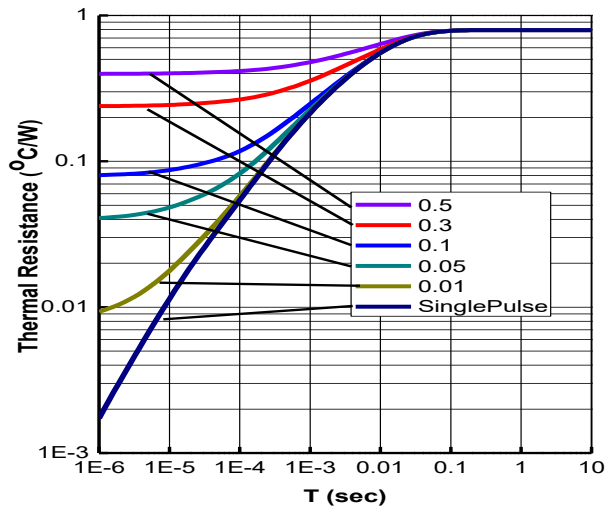
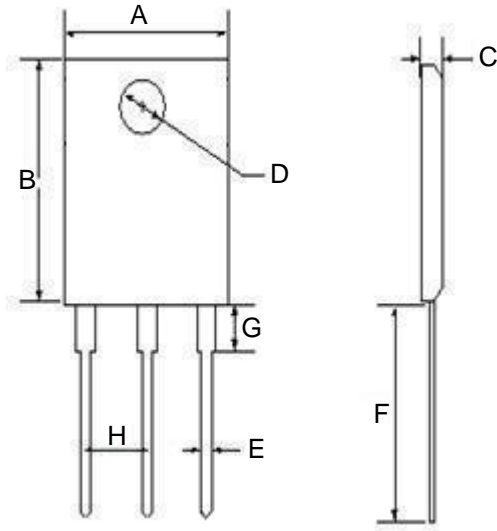


Figure 6. Transient Thermal Impedance

Package Dimensions



Symbol	Min. (mm)	Typ. (mm)	Max. (mm)
A	14.18	15.75	17.33
B	18.45	20.5	22.55
C	4.50	5.00	5.50
D	3.15	3.50	3.85
E	1.08	1.20	1.32
F	18.27	20.30	22.33
G	4.21	4.68	5.15
H	4.91	5.46	6.01