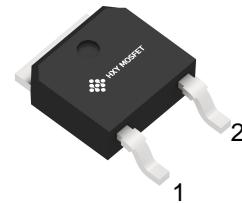




Features

- 650-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F



TO-252N-2L

Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway



Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives



Part Number	Package	Qty(PCS)
S3D08065E	TO-252N-2L	2500

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

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
I_F	Continuous Forward Current	22.3 10.5 8	A	$T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=149.5^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	30	A	$T_c=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	60	A	$T_c=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave
P_{tot}	Power Dissipation	89 38	W	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C	
$\int i^2 dt$	$i^2 dt$ value	18	A ² s	$T_c=25^\circ\text{C}$, $t_p = 10$ ms, Half Sine Wave



Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	650			V	
V_F	Forward Voltage		1.42 1.88	1.7 2.5	V	$I_F = 6 \text{ A } T_J = 25^\circ\text{C}$ $I_F = 6 \text{ A } T_J = 175^\circ\text{C}$
I_R	Reverse Current		0.12 0.91	50 100	μA	$V_R = 650 \text{ V } T_J = 25^\circ\text{C}$ $V_R = 650 \text{ V } T_J = 175^\circ\text{C}$
Q_c	Total Capacitive Charge		21		nC	$V_R = 400 \text{ V } T_J = 25^\circ\text{C}$
C	Total Capacitance		395 42 41		pF	$V_R = 0 \text{ V }, T_J = 25^\circ\text{C}, f = 1 \text{ MHz}$ $V_R = 200 \text{ V }, T_J = 25^\circ\text{C}, f = 1 \text{ MHz}$ $V_R = 400 \text{ V }, T_J = 25^\circ\text{C}, f = 1 \text{ MHz}$
E_c	Capacitance Stored Energy		5		μJ	$V_R = 400 \text{ V }$

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.69	$^\circ\text{C/W}$

Typical Performance

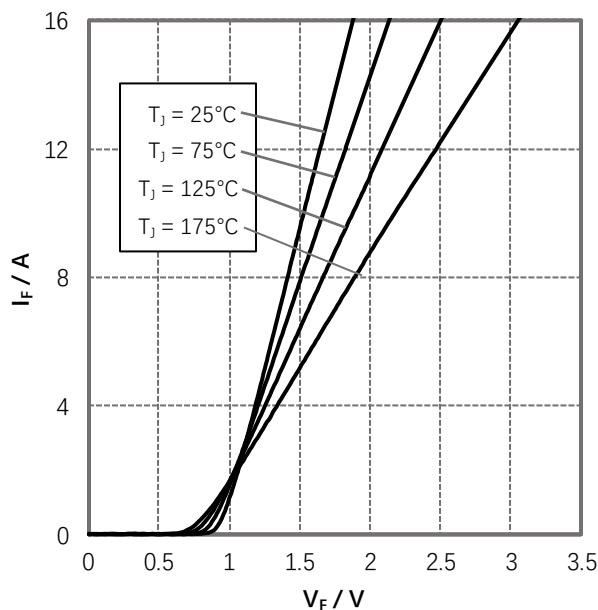


Figure 1. Forward Characteristics

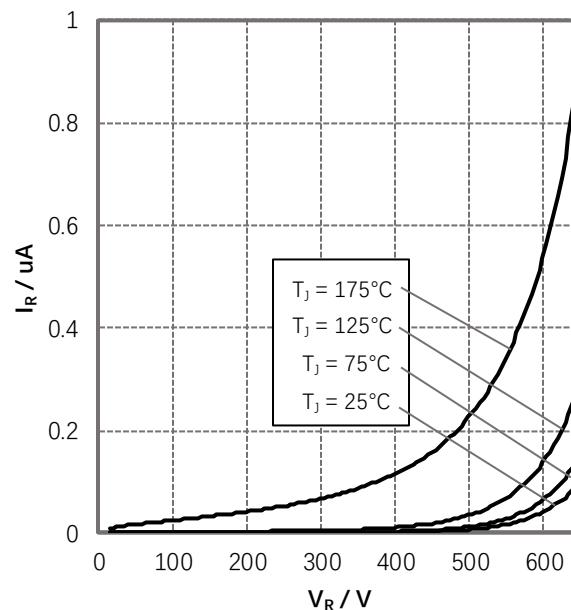


Figure 2. Reverse Characteristics

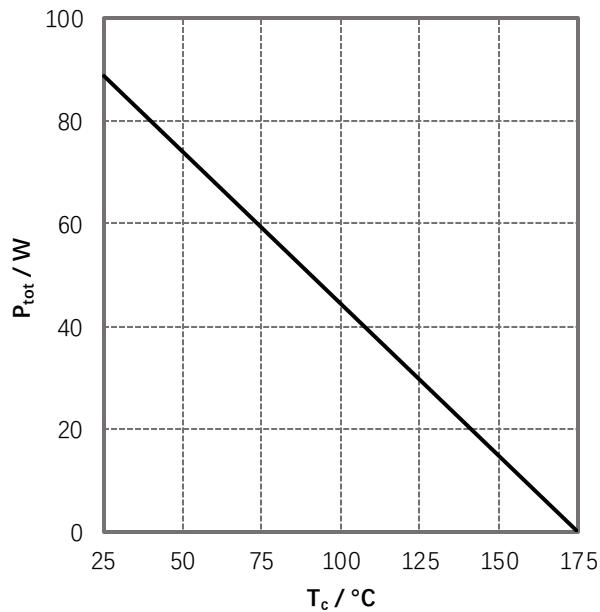


Figure 3. Power Derating

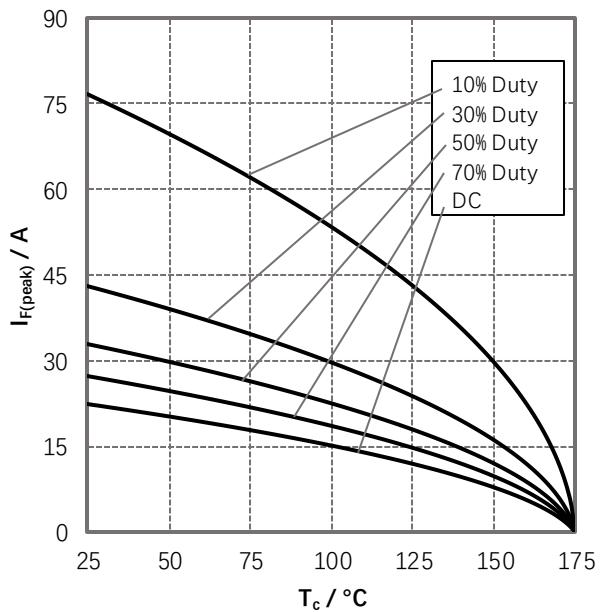


Figure 4. Current Derating

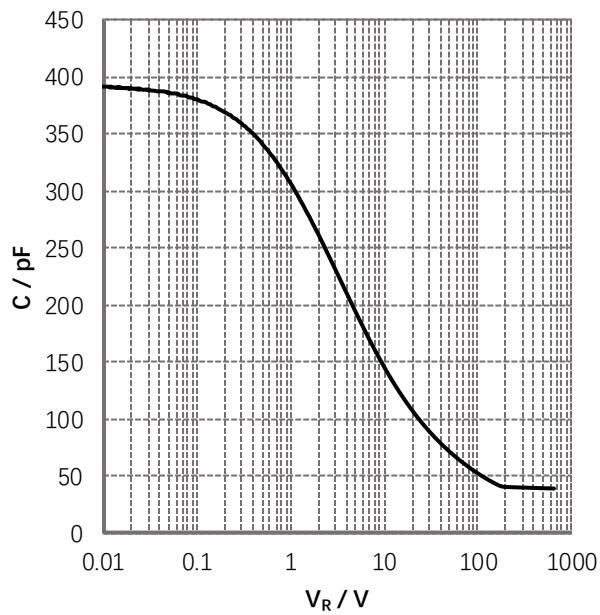


Figure 5. Capacitance vs. Reverse Voltage

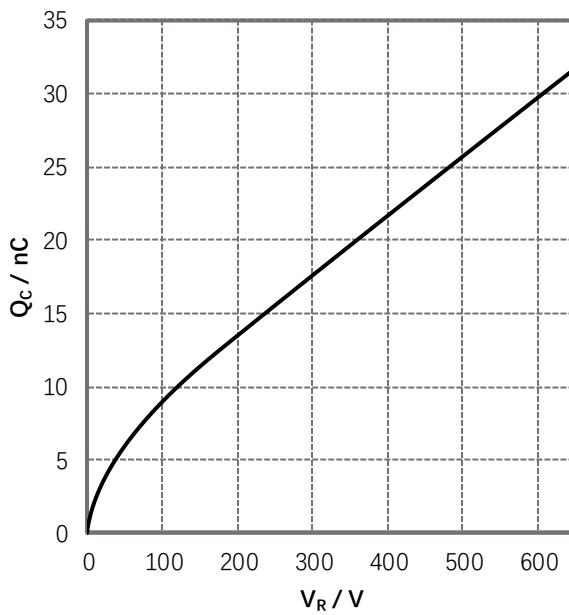


Figure 6. Total Capacitance Charge vs. Reverse Voltage

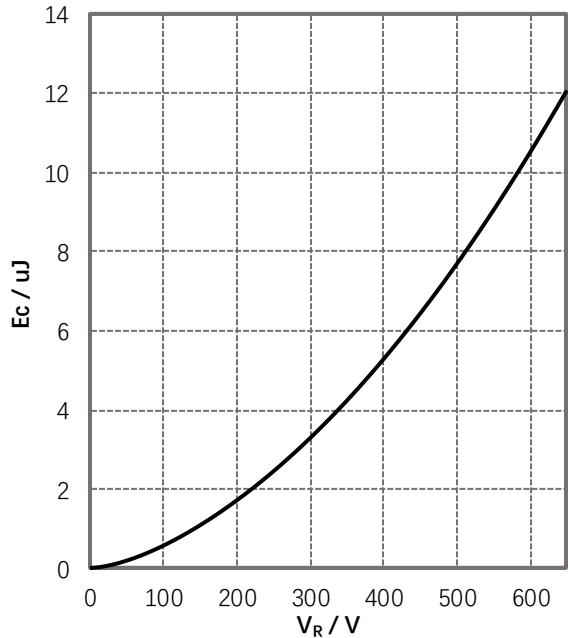


Figure 7. Capacitance Stored Energy

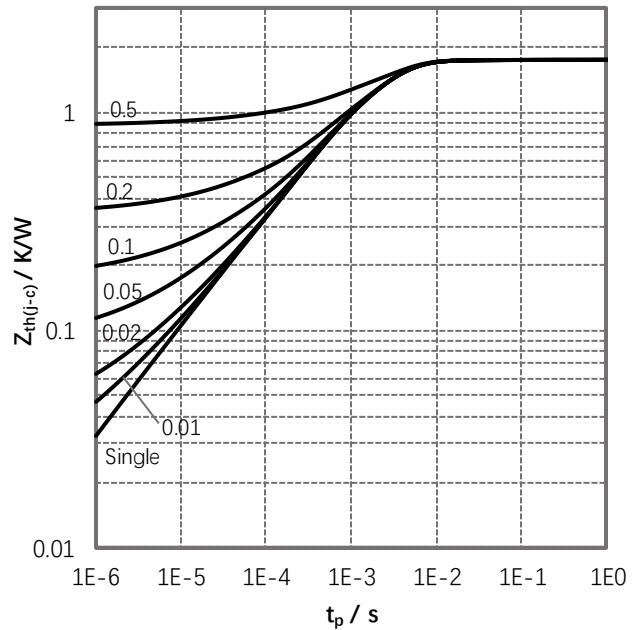
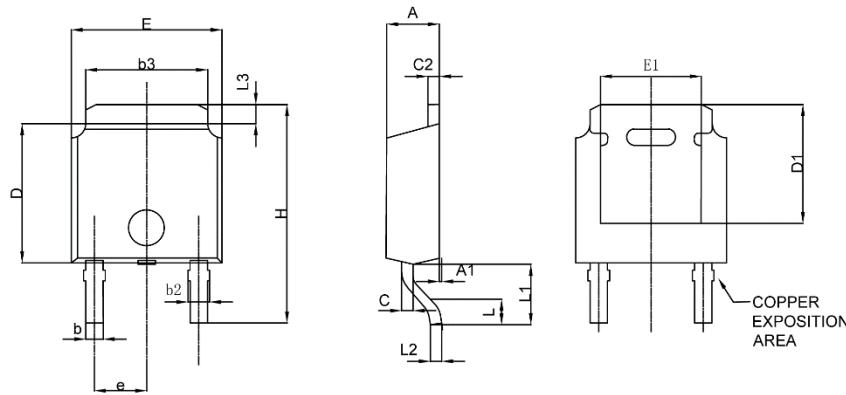


Figure 8. Transient Thermal Impedance



Package Information TO-252N-2L



Symbol	DIMENSIONAL REQMTS		
	Min	Nom	Max
E	6.35	6.60	6.73
L	1.40	1.52	1.78
L1		2.743REF	
L2		0.508BSC	
L3	0.89	—	1.27
D	5.97	6.10	6.22
H	9.40	10.00	10.40
b	0.64	0.76	0.89
b2	0.76	0.84	1.14
b3	4.95	5.34	5.46
e		2.286BSC	
A	2.18	2.30	2.39
A1	0.00	—	0.13
c	0.46	0.50	0.61
c2	0.46	0.50	0.60
D1	5.21	—	—
E1	4.32	—	—

Note:

1. All Dimension Are In mm
2. Package Body Sizes Exclude Mold Flash,Protrusion Or Gate Burrs.
Mold Flash,Protrusion Or Gate Burrs Shall Not Exceed 0.10mm Per Side.
3. Package Body Sizes Determined At The Outermost Extremes
Of The Plastic Body Exclusive Of Mold Flash,
Gate Burrs And Interlead Flash,
But Including Any Mismatch Between
The Top And Bottom Of The Plastic Body.
4. The Package Top May Be Smaller Than The Package Bottom.
5. Dimension "b" Does Not Include Dambar Protrusion.
Allowable Dambar Protrusion Shall Be 0.10mm
Total In Excess Of "b" Dimension At Maximum Material Condition.
The Dambar Cannot Be Located On The Lower Radius Of The Foot.



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