8A, 1200V SiC Merged PIN Schottky Diode

FEATURES

- AEC-Q101 qualified
- Max junction temperature 175°C
- High-speed switching possible
- High forward surge capability
- High-frequency operation
- Positive temperature coefficient on V_F
- RoHS compliant
- Halogen-free

APPLICATIONS

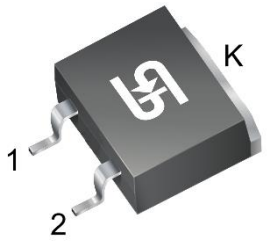
- General purpose
- Switch mode power supplies
- Power factor correction

MECHANICAL DATA

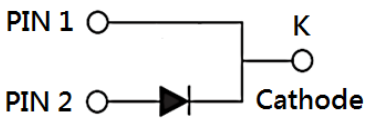
- Case: TO-263-2L (D^2PAK-2L)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: As circuit diagram
- Weight: 1.51g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	8	A
V_{RRM}	1200	V
I_{FSM}	92	A
$T_{J\ MAX}$	175	°C
Package	TO-263-2L (D^2PAK-2L)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



TO-263-2L (D^2PAK-2L)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**VALUE**	**UNIT**
Repetitive peak reverse voltage		V_{RRM}	1200	V
Reverse voltage, total rms value		$V_{R(RMS)}$	840	V
Forward current		I_F	8	A
Surge peak forward current 10ms single half sine-wave superimposed on rated load	T_C = 25°C	I_{FSM}	92	A
	T_C = 150°C		80	A
Non-repetitive peak forward surge current	t_p = 10μs	$I_{F,\ MAX}$	677	A
Junction temperature		T_J	-55 to +175	°C
Storage temperature		T_{STG}	-55 to +175	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	MAX	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	1.15	1.38	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 4A, T_J = 25°C	V_F	1.16	-	V
	I_F = 8A, T_J = 25°C		1.38	1.50	V
	I_F = 4A, T_J = 150°C		1.30	-	V
	I_F = 8A, T_J = 150°C		1.80	2.10	V
	I_F = 4A, T_J = 175°C		1.36	-	V
	I_F = 8A, T_J = 175°C		1.95	-	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	30	μA
	T_J = 175°C		-	100	μA
Junction capacitance	f = 1MHz, V_R = 1V	C_J	637	-	pF
	f = 1MHz, V_R = 800V		39	-	pF
Capacitive Charge	V_R = 800V	Q_C	46	-	nC

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TSCDK08120G2H	TO-263-2L (D^2PAK-2L)	800 / 13" Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Typical Forward Characteristics

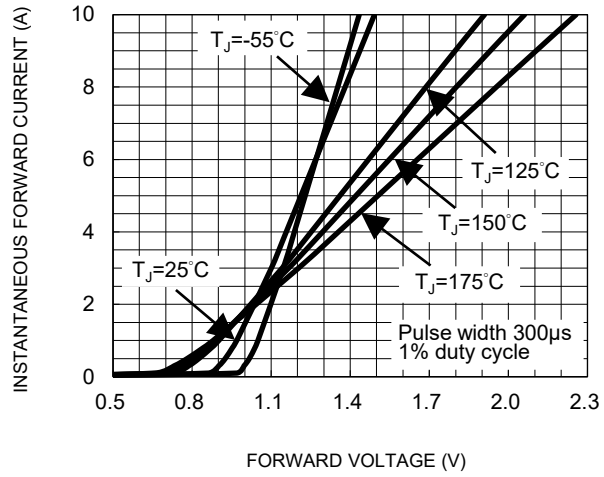


Fig.2 Typical Reverse Characteristics

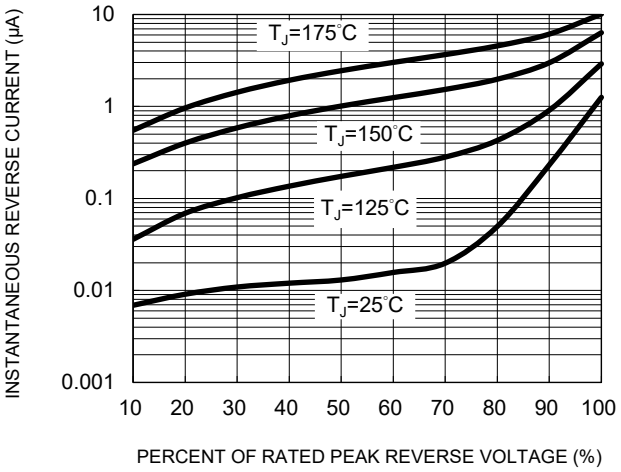


Fig.3 Peak forward current versus case temperature

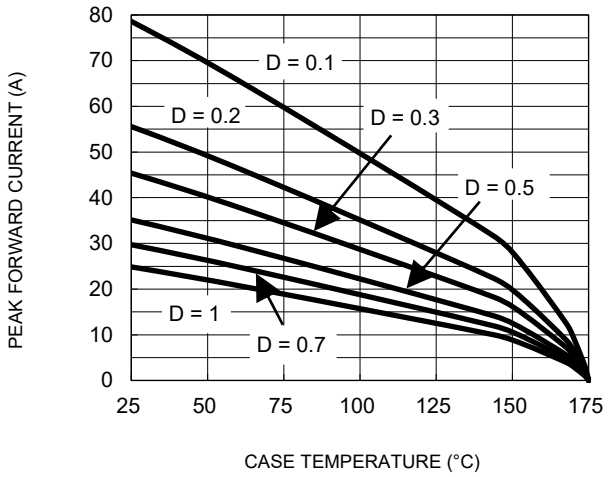


Fig.4 Typical Junction Capacitance

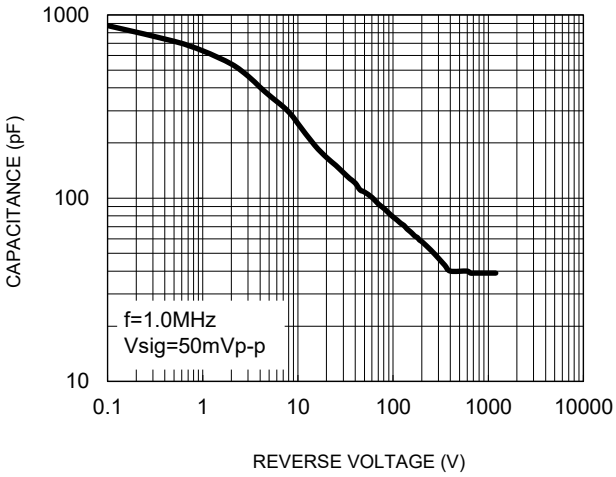


Fig.5 Typical Capacitive Charge

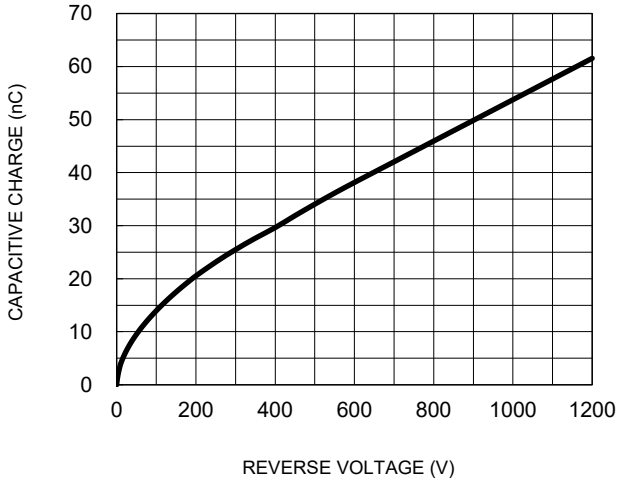
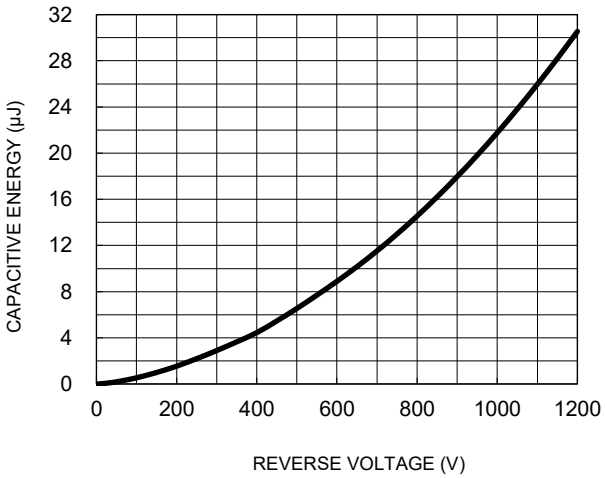


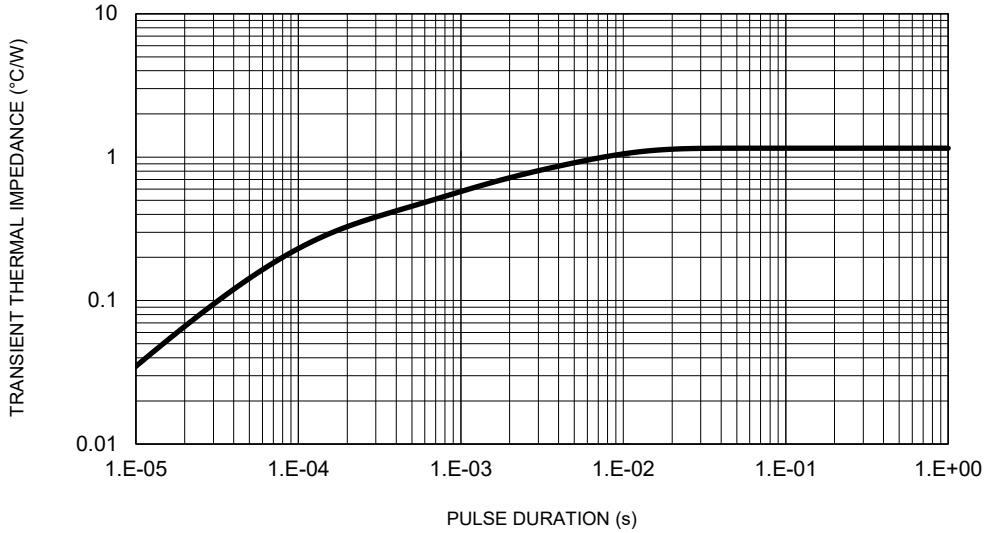
FIG.6 Typical Capacitance Stored Energy



CHARACTERISTICS CURVES

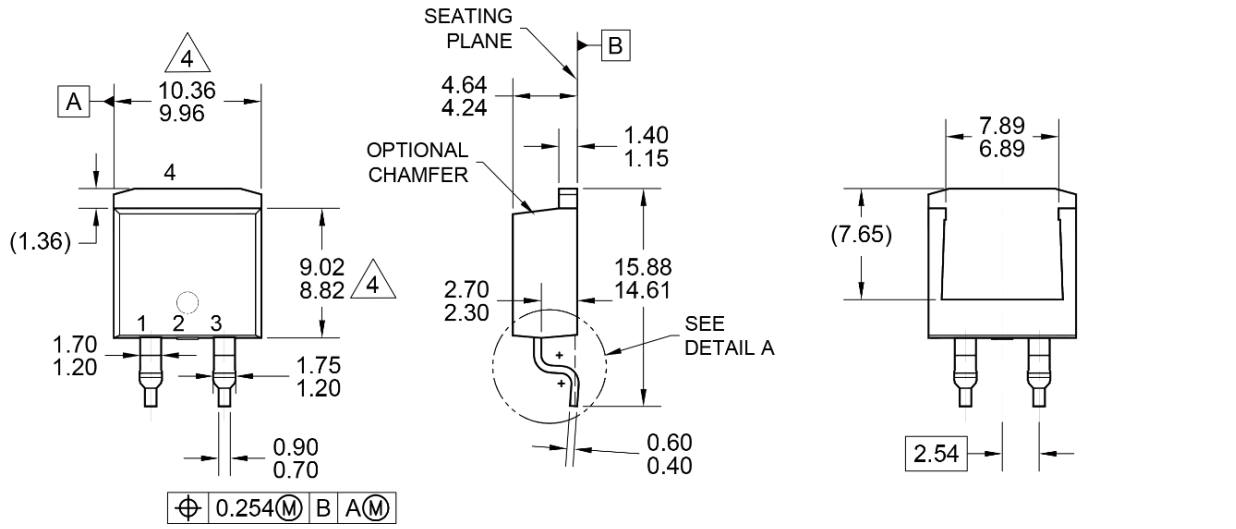
(T_A = 25°C unless otherwise noted)

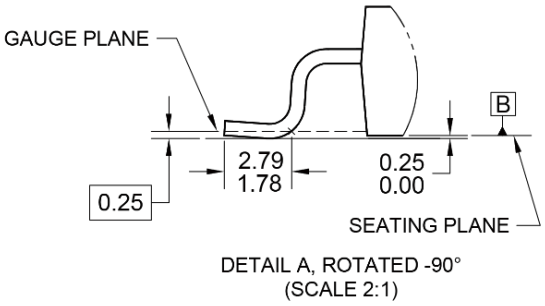
Fig.7 Typical Transient Thermal Characteristics



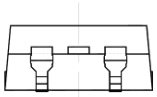
PACKAGE OUTLINE DIMENSIONS

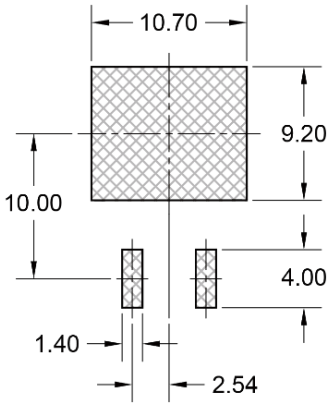
TO-263-2L (D²PAK-2L)



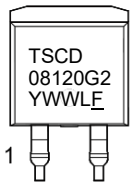


DETAIL A, ROTATED -90°
(SCALE 2:1)





SUGGESTED PAD LAYOUT



MARKING DIAGRAM

Y	= Year Code
WW	= Week Code (01~52)
L	= Lot Code (1~9,A~Z)
F	= Factory Code

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. THE PACKAGE OUTLINE REFERENCE: JEDEC TO-263, VARIATION AB, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DWG NO REF: HQ2SD07-TO263ABSiC-137 REV A.

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.