5A, 20V - 200V Schottky Barrier Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for overvoltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

APPLICATIONS

- Low voltage, high frequency
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.210g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	5	A
V_{RRM}	20 - 200	V
I_{FSM}	120	A
$T_{J\ MAX}$	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-214AB (SMC)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	SK 52CH	SK 53CH	SK 54CH	SK 55CH	SK 56CH	SK 59CH	SK 510CH	SK 515CH	SK 520CH	UNIT
Marking code on the device		SK 52C	SK 53C	SK 54C	SK 55C	SK 56C	SK 59C	SK 510C	SK 515C	SK 520C	
Repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	90	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	140	V
Forward current	I_F	5									A
Surge peak forward current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	120									A
Critical rate of rise of off-state voltage	dV/dt	10,000									V/μs
Junction temperature	T_J	- 55 to +150									°C
Storage temperature	T_{STG}	- 55 to +150									°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	13	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	53	°C/W
Junction-to-case thermal resistance	$R_{\Theta JC}$	16	°C/W

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	SK52CH SK53CH SK54CH	I_F = 5A, T_J = 25°C	V_F	-	0.55	V
	SK55CH SK56CH			-	0.75	V
	SK59CH SK510CH			-	0.85	V
	SK515CH SK520CH			-	0.95	V
Reverse current @ rated V_R(2)	SK52CH SK53CH SK54CH SK55CH SK56CH	T_J = 25°C	I_R	-	0.5	mA
	SK59CH SK510CH SK515CH SK520CH			-	0.3	mA
	SK52CH SK53CH SK54CH	T_J = 100°C	I_R	-	20	mA
	SK55CH SK56CH			-	10	mA
	SK59CH SK510CH SK515CH SK520CH			-	-	mA
	SK52CH SK53CH SK54CH	T_J = 125°C	I_R	-	-	mA
	SK55CH SK56CH			-	-	mA
	SK59CH SK510CH SK515CH SK520CH			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE(1)	PACKAGE	PACKING
SK5xCH	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

1. "x" defines voltage from 20V(SK52CH) to 200V(SK520CH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

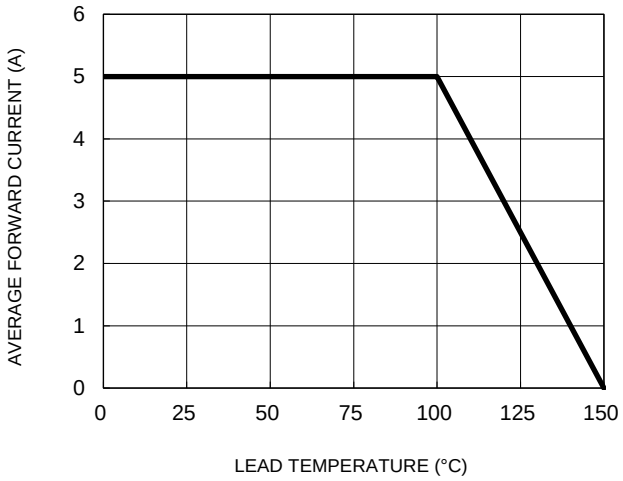


Fig.2 Typical Junction Capacitance

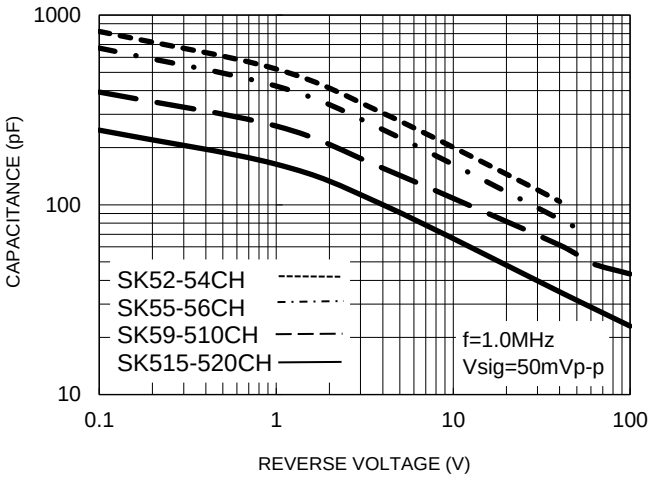


Fig.3 Typical Reverse Characteristics

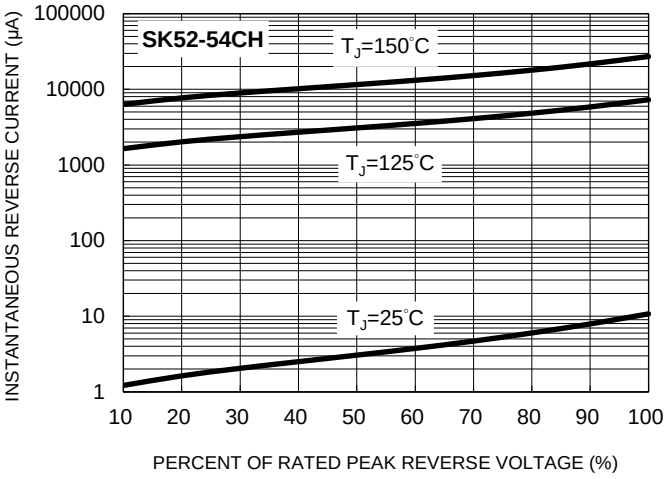


Fig.4 Typical Forward Characteristics

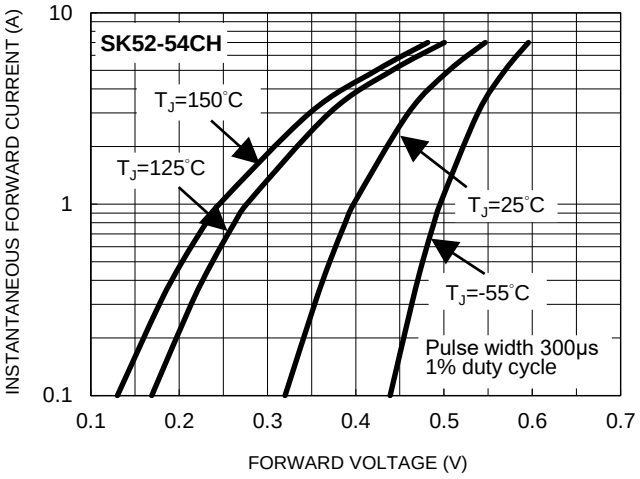


Fig.5 Typical Reverse Characteristics

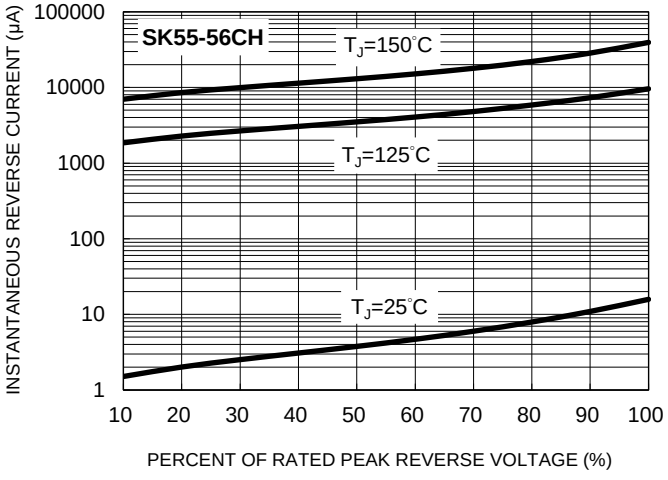
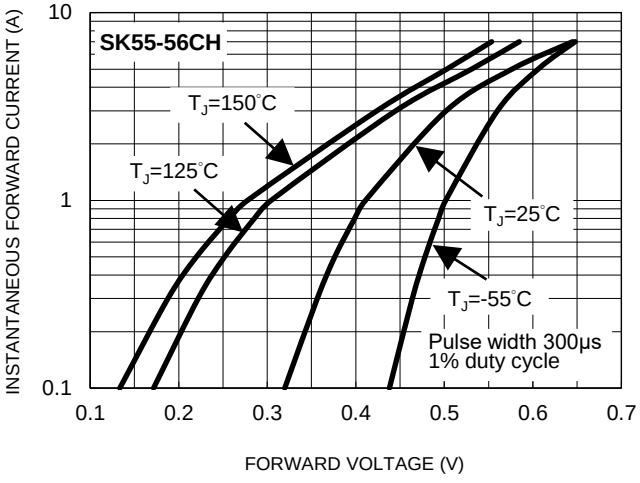


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.7 Typical Reverse Characteristics

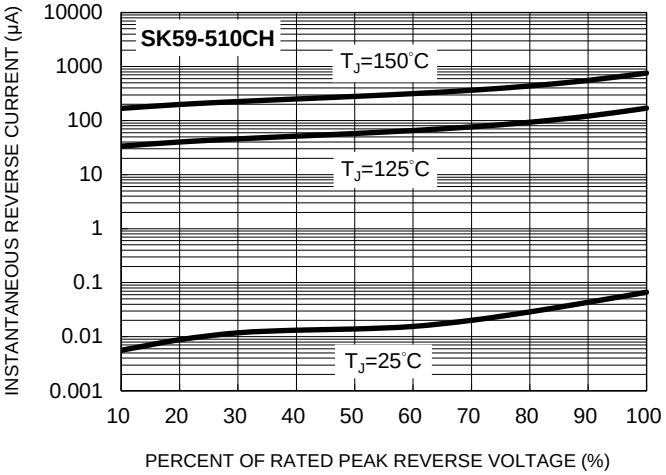


Fig.8 Typical Forward Characteristics

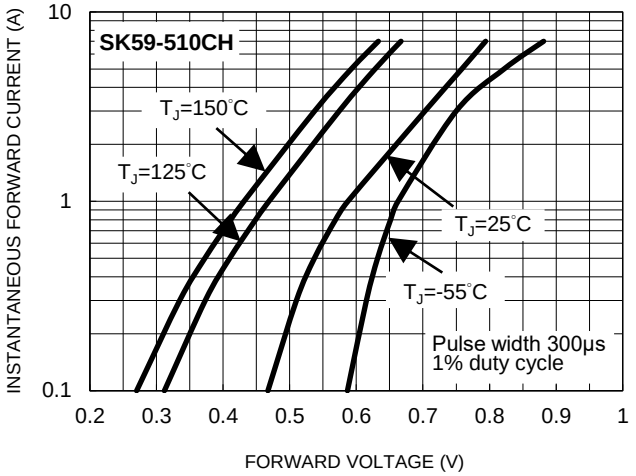


Fig.9 Typical Reverse Characteristics

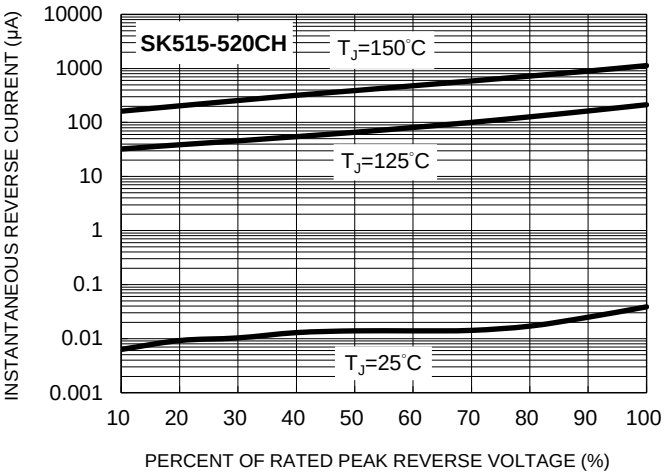


Fig.10 Typical Forward Characteristics

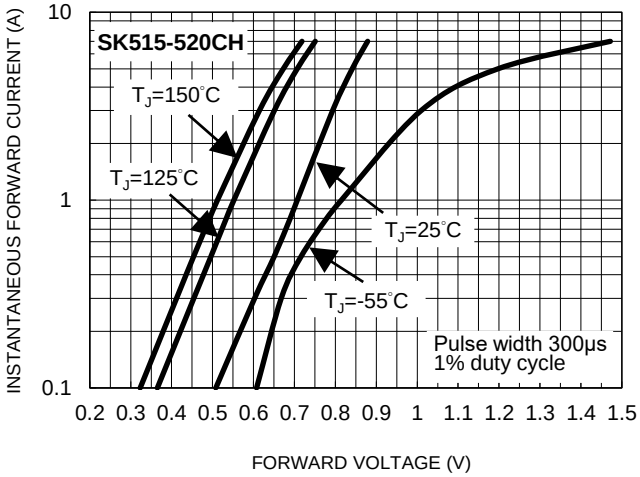


Fig.11 Typical Forward Power Dissipation vs. Forward Current

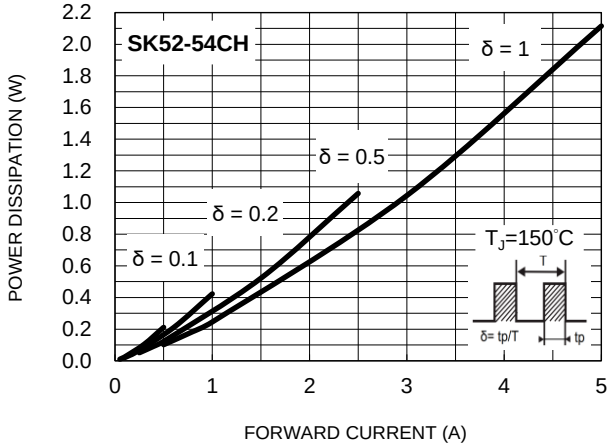
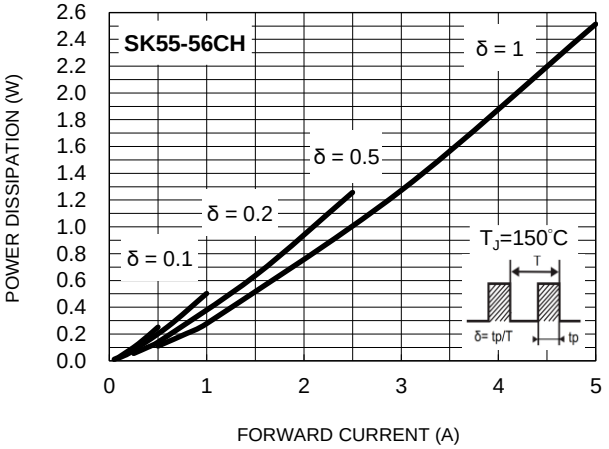


Fig.12 Typical Forward Power Dissipation vs. Forward Current



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.13 Typical Forward Power Dissipation vs. Forward Current

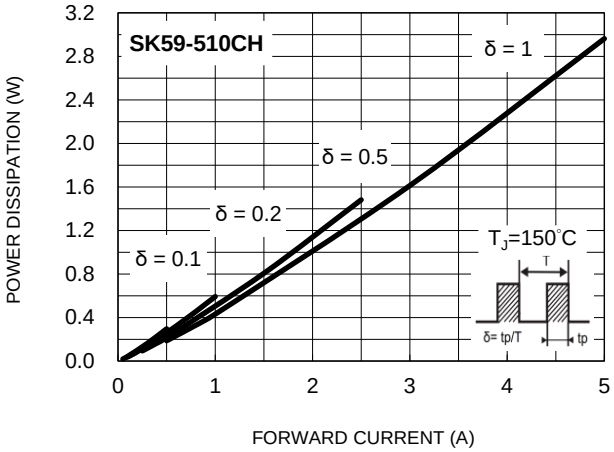


Fig.14 Typical Forward Power Dissipation vs. Forward Current

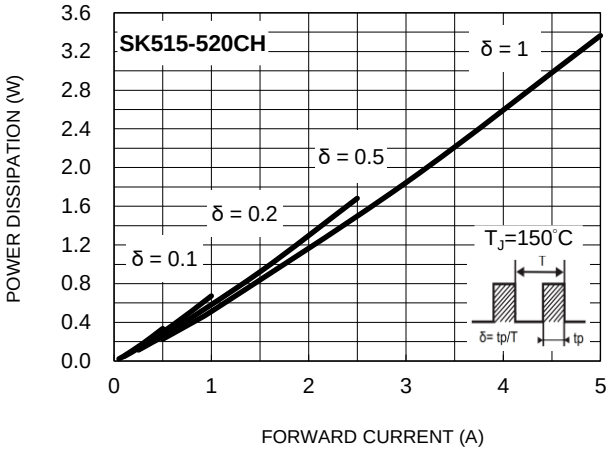


Fig.15 Maximum Non-Repetitive Forward Surge Current

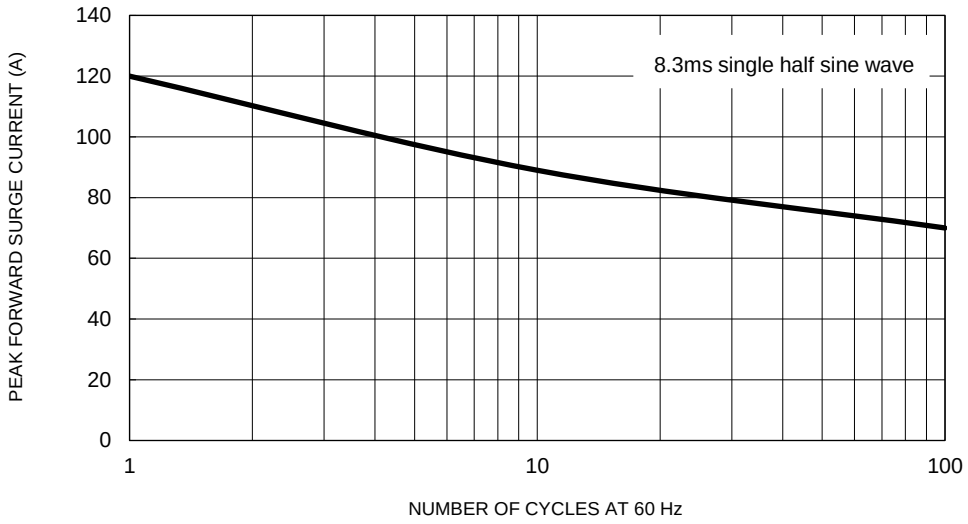
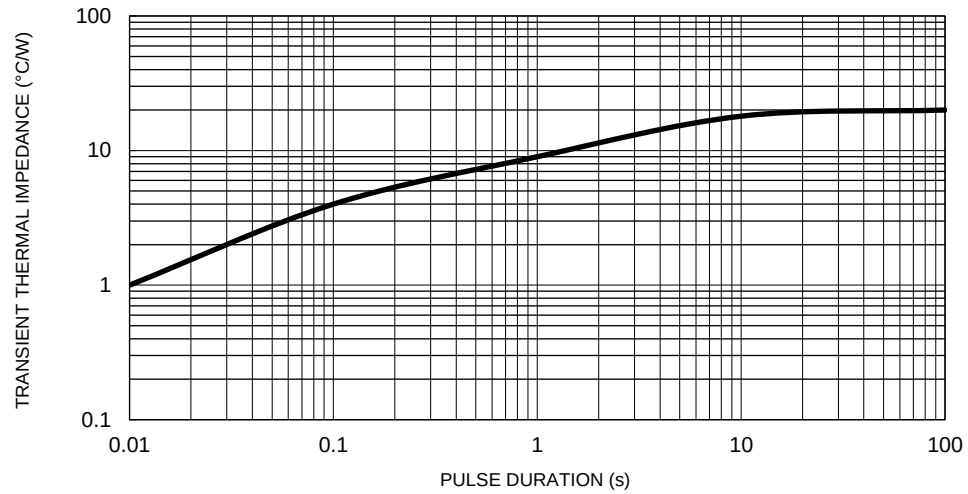
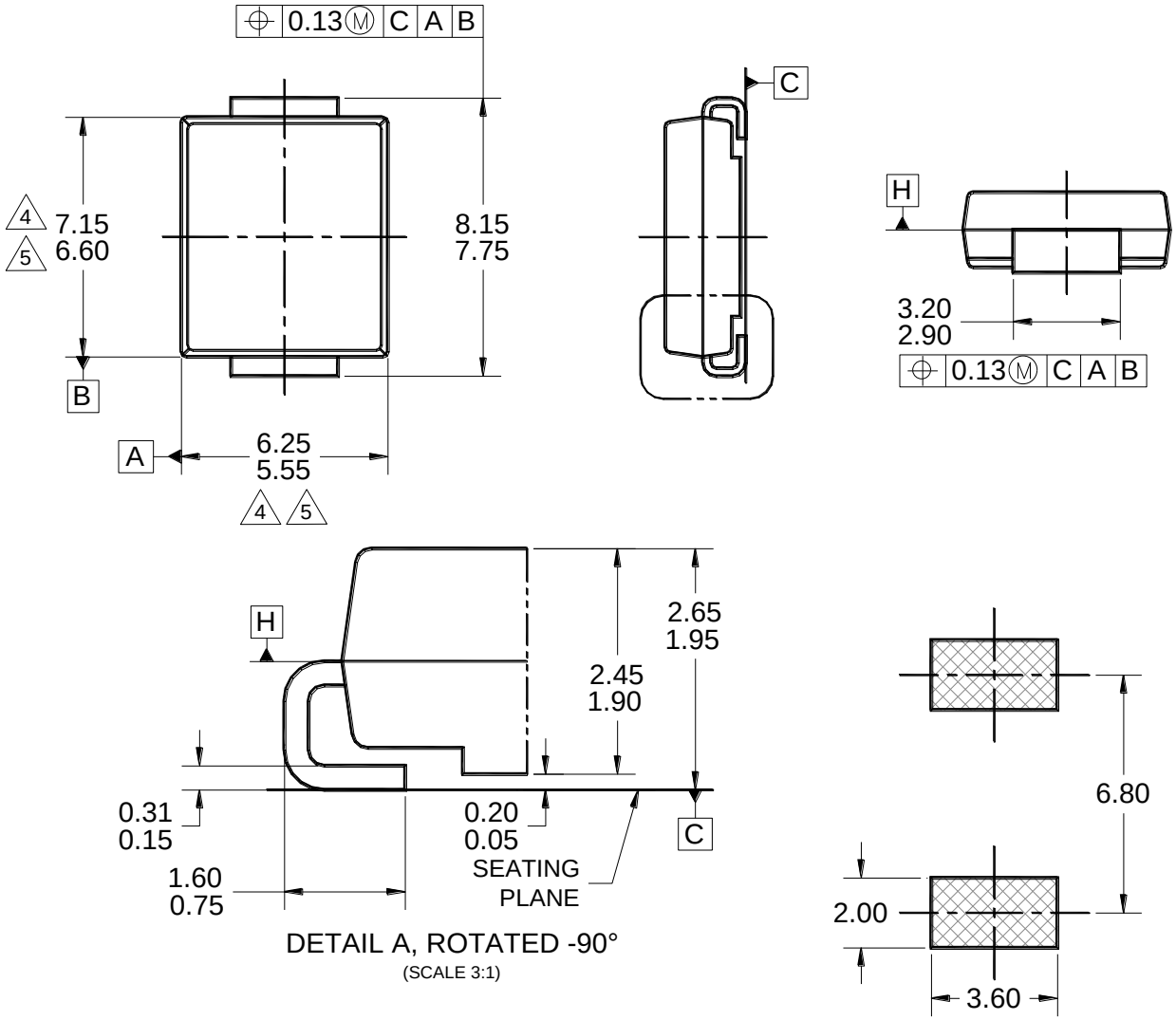


Fig.16 Typical Transient Thermal Characteristics



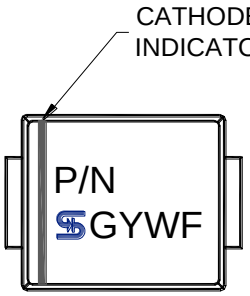
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DETAIL A, ROTATED -90°
(SCALE 3:1)

SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE
G = GREEN COMPOUND
YW = DATE CODE
F = FACTORY CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-214, VARIATION AB, ISSUE D.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLDED PLASTIC BODY LATERAL DIMENSIONS TO BE DETERMINED AT DATUM PLANE H.
6. DWG NO. REF: HQ2SD07-DO214SMC-036 REV A.

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