

100mA - 150mA, 75V Surface Mount Switching Diode

FEATURES

- Low power loss, high efficiency
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Molding compound meets UL 94HB flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	100, 150	mA
V_{RRM}	75	V
Configuration	Single die	



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		SYMBOL	TS4148	TS4148	TS4148	UNIT
Package			0603 (Ceramics)	0805 (Ceramics)	1206 (Ceramics)	
Repetitive peak reverse voltage		V_{RRM}	75			V
Forward current		I_F	100	150	150	mA
Non-repetitive peak forward surge current	$t = 1\text{s}$	I_{FSM}	0.4	0.5		A
	$t = 8.3\text{ms}$		0.8	2.0		A
Junction temperature range		T_J	-55 to +150	-55 to +175	-55 to +150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to +150	-55 to +175	-55 to +150	$^\circ\text{C}$

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	375	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	0603, 1206 (Ceramics)	$I_F = 10\text{mA}$, $T_J = 25^\circ\text{C}$	V_F	-	1.00	V
	0805 (Ceramics)	$I_F = 100\text{mA}$, $T_J = 25^\circ\text{C}$		-	1.00	V
	0603, 1206 (Ceramics)	$I_F = 100\text{mA}$, $T_J = 25^\circ\text{C}$		-	1.25	V
Reverse current @ rated V_R ⁽²⁾		$V_R = 20\text{V}$, $T_J = 25^\circ\text{C}$	I_R	-	25	nA
		$V_R = 75\text{V}$, $T_J = 25^\circ\text{C}$		-	5	μA
Reverse recovery time		$I_F = 10\text{mA}$, $I_R = 10\text{mA}$, $R_L = 100\Omega$	t_{rr}	-	4	ns
Junction capacitance		1MHz, $V_R = 0\text{V}$	C_J	-	4	pF

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
TS4148 RCG	0603 (Ceramics)	10,000 / 13" Tape & Reel
TS4148 RBG	0805 (Ceramics)	10,000 / 13" Tape & Reel
TS4148 RAG	1206 (Ceramics)	10,000 / 13" Tape & Reel

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Typical Reverse Characteristics

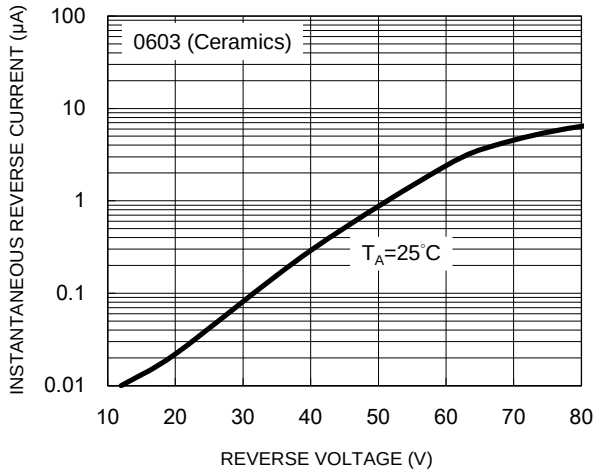


Fig.2 Typical Forward Characteristics

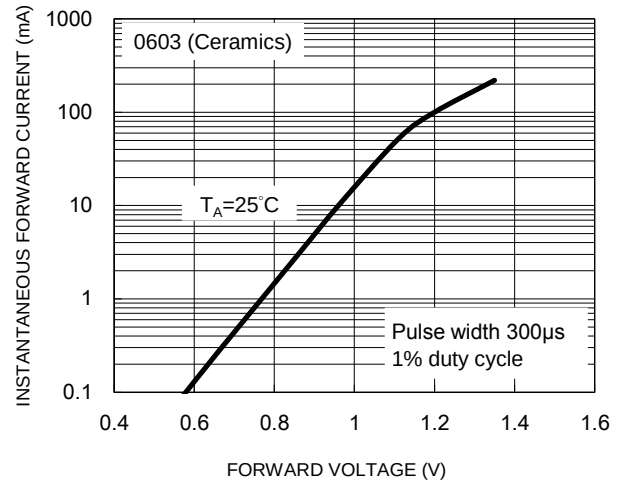


Fig.3 Typical Reverse Characteristics

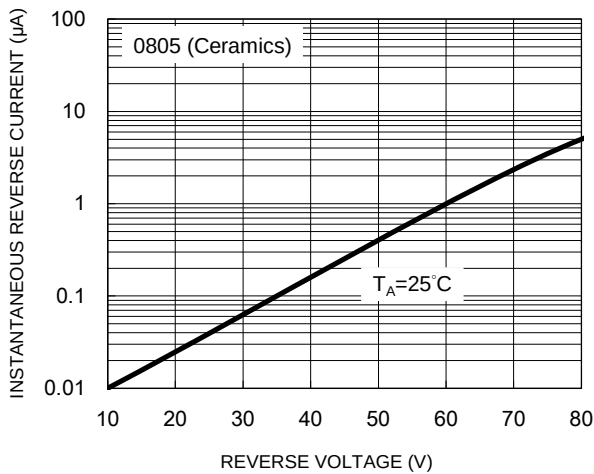


Fig.4 Typical Forward Characteristics

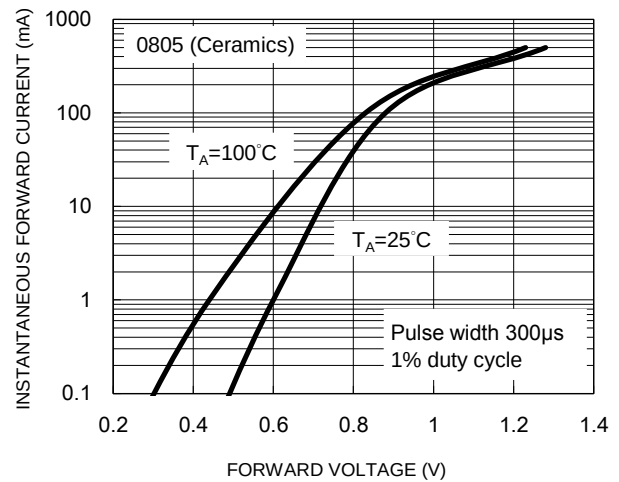


Fig.5 Typical Reverse Characteristics

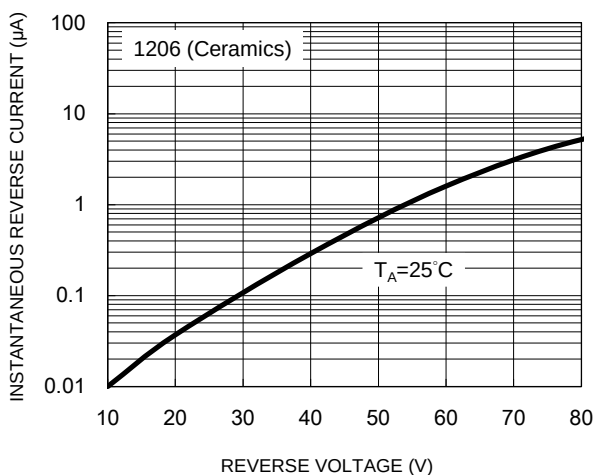
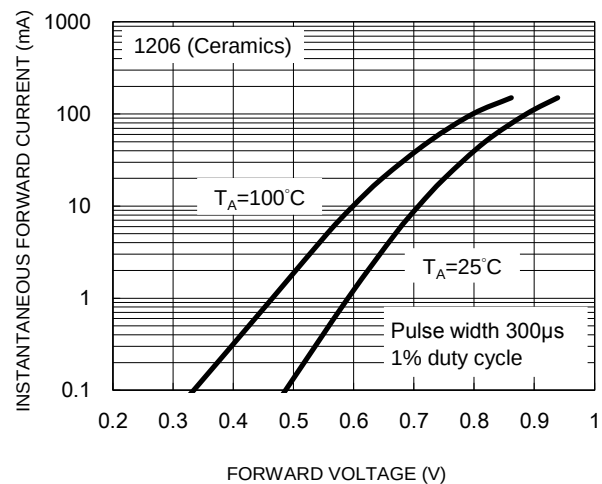


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.7 Admissible Power Dissipation Curve

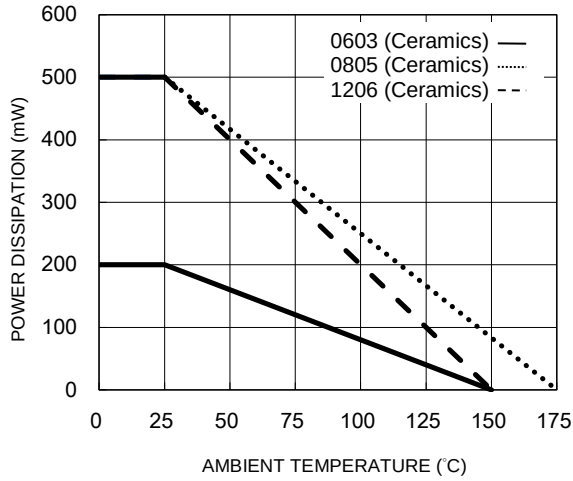


Fig.8 Typical Junction Capacitance

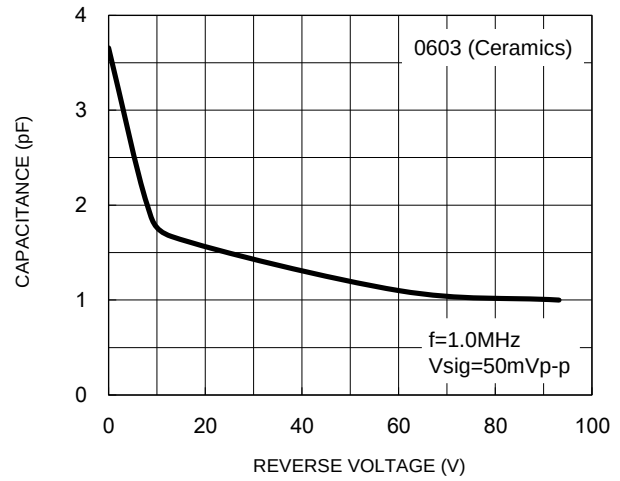


Fig.9 Typical Junction Capacitance

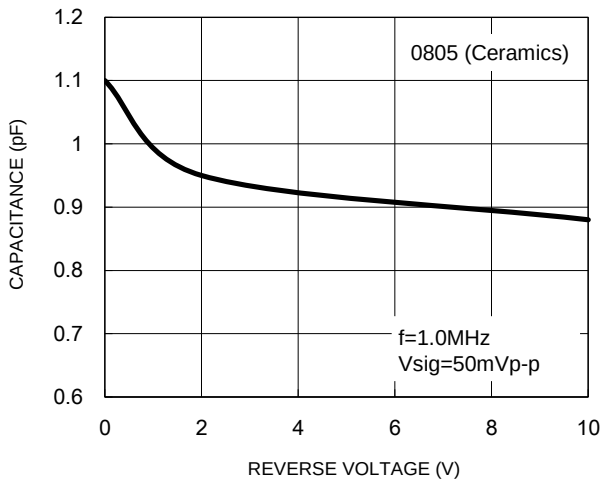
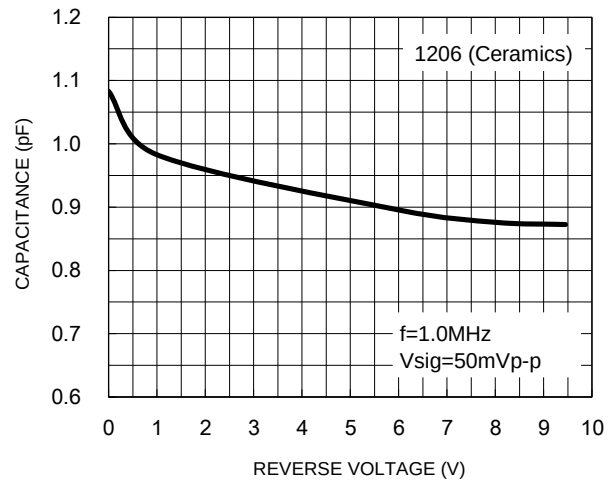
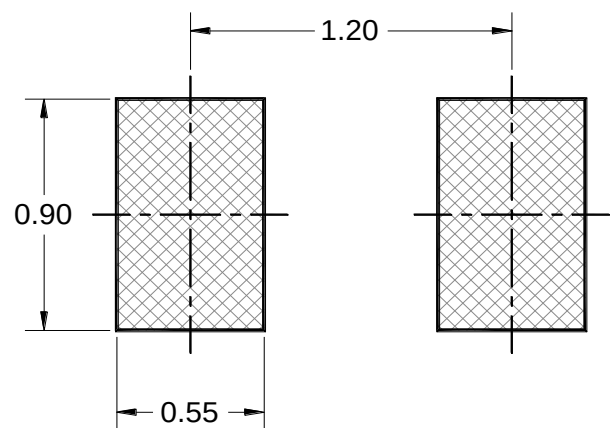
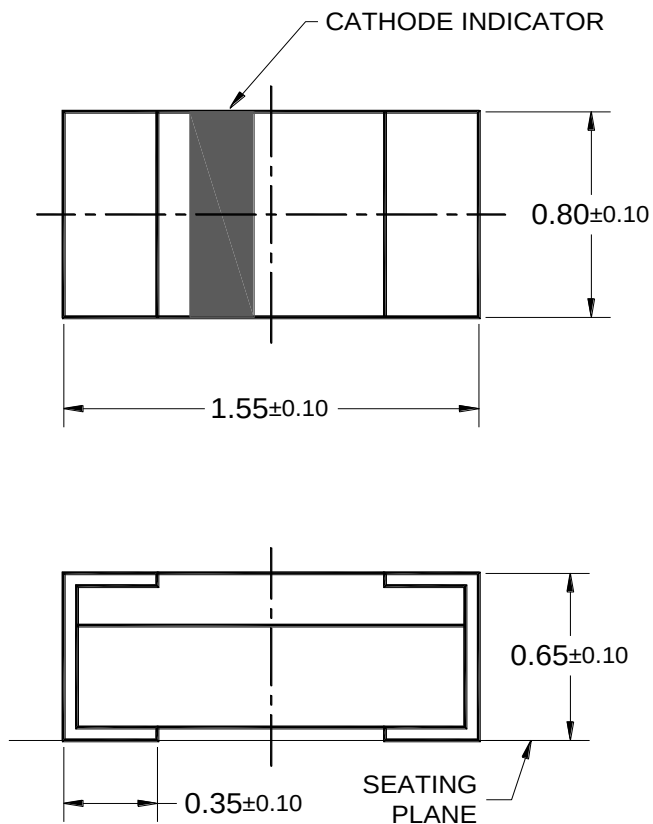


Fig.10 Typical Junction Capacitance

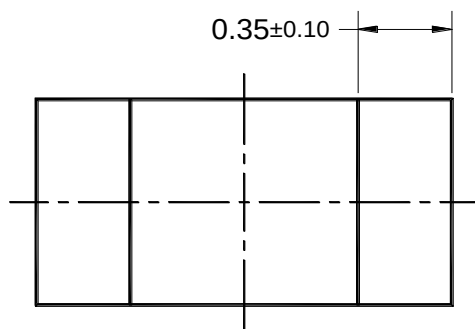


PACKAGE OUTLINE DIMENSIONS

0603 (Ceramics)



SUGGESTED PAD LAYOUT

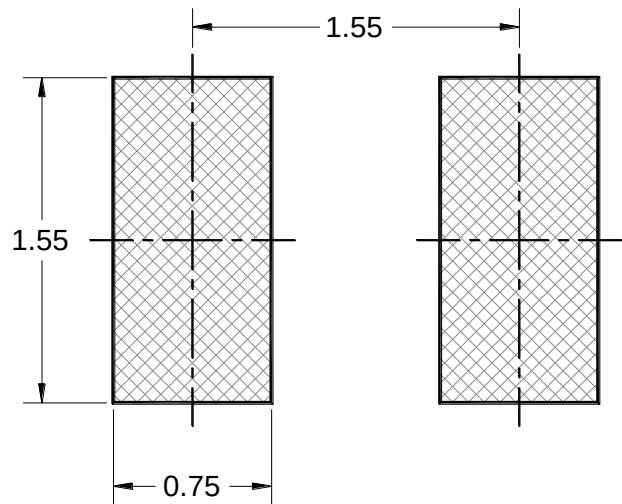
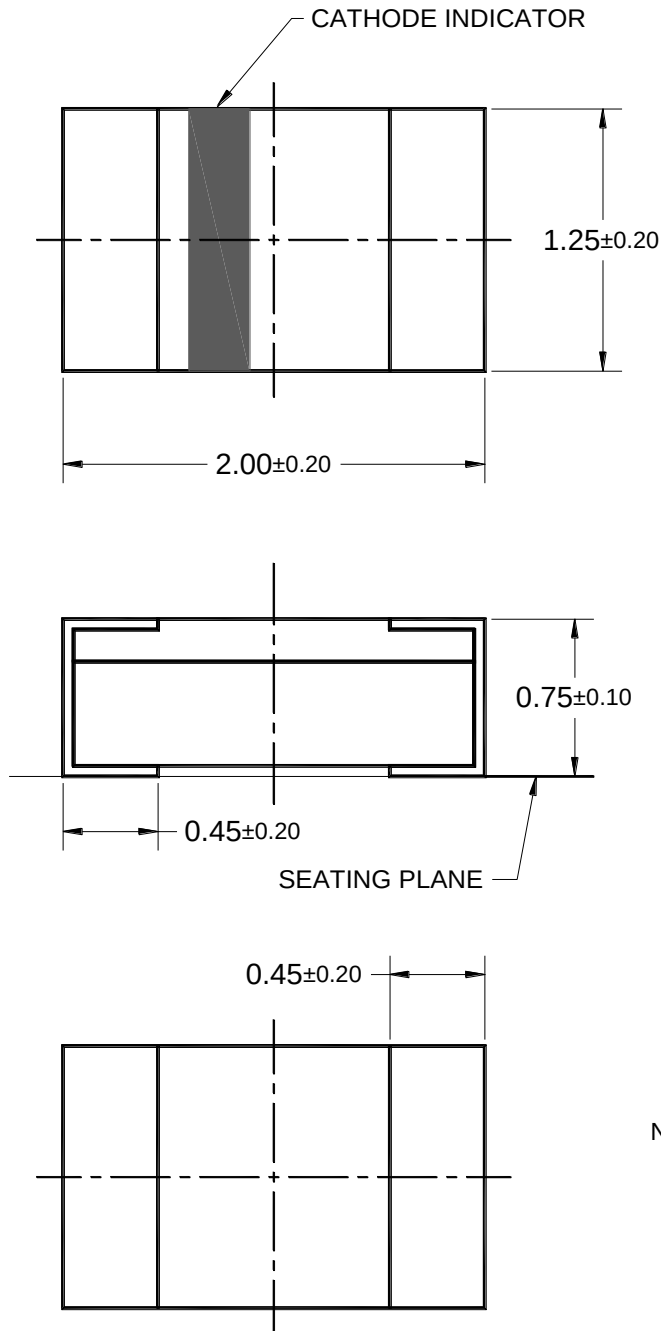


NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. PACKAGE SIZE CODE REFERENCE:
EIA (inch) NAME: 0603 (0.063in x 0.031in)
IEC (metric) NAME: 1608 (1.6mm x 0.8mm)
3. DWG NO. REF: HQ2SD07-0603C-048 REV A.

PACKAGE OUTLINE DIMENSIONS

0805 (Ceramics)



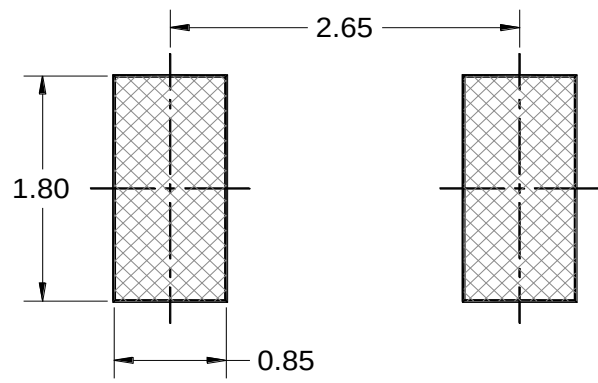
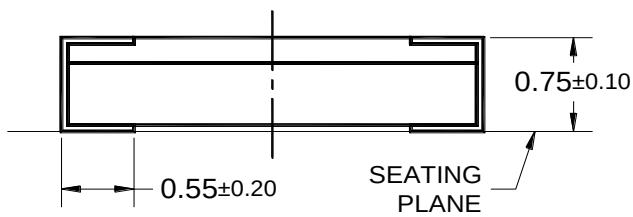
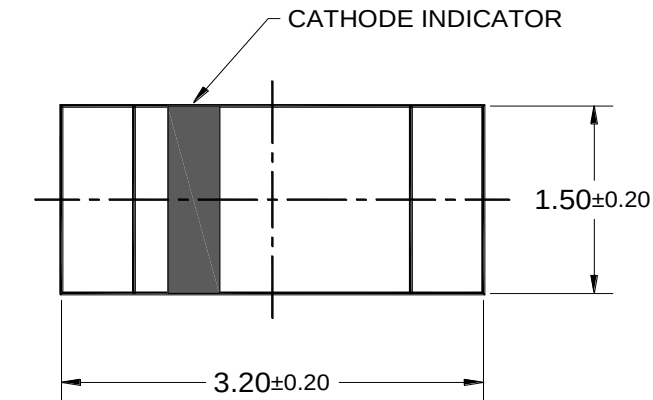
SUGGESTED PAD LAYOUT

NOTES: UNLESS OTHERWISE SPECIFIED

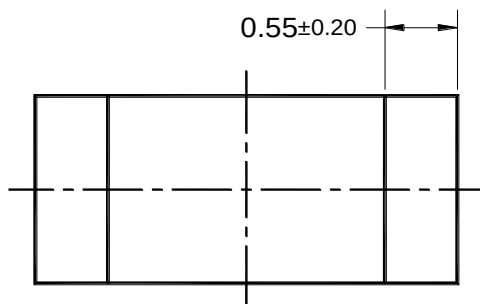
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. PACKAGE SIZE CODE REFERENCE:
EIA (inch) NAME: 0805 (0.079in x 0.049in)
IEC (metric) NAME: 2012 (2.0mm x 1.25mm)
3. DWG NO. REF: HQ2SD07-0805-042 REV A.

PACKAGE OUTLINE DIMENSIONS

1206 (Ceramics)



SUGGESTED PAD LAYOUT



NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. PACKAGE SIZE CODE REFERENCE:
EIA (inch) NAME: 1206 (0.126in x 0.063in)
IEC (metric) NAME: 3216 (3.2mm x 1.6mm)
3. DWG NO. REF: HQ2SD07-1206C-049 REV A.

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