

Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Vishay/Siliconix](#)

[SIA950DJ-T1-GE3](#)

For any questions, you can email us directly:

sales@integrated-circuit.com

New Product



SiA950DJ
Vishay Siliconix

Dual N-Channel 190-V (D-S) MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (Ω)	I _D (A) ^a	Q _g (Typ.)
190	3.8 at V _{GS} = 4.5 V	0.95	1.4 nC
	4.2 at V _{GS} = 2.5 V	0.9	
	17 at V _{GS} = 1.8 V	0.3	

FEATURES

- Halogen-free According to IEC 61249-2-21
- LITTLE FOOT® Power MOSFET
- New Thermally Enhanced PowerPAK® SC-70 Package
 - Small Footprint Area
 - Low On-Resistance
 - Thin 0.75 mm profile

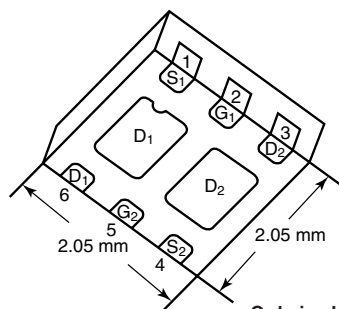


RoHS
COMPLIANT
HALOGEN
FREE

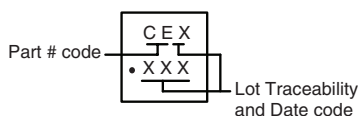
APPLICATIONS

- DC/DC Converter for Portable Devices
- Load Switch for Portable Devices

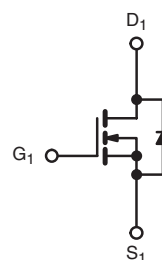
PowerPAK SC-70-6 Dual



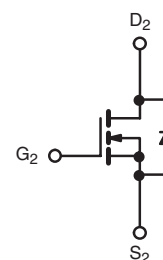
Marking Code



Ordering Information: SiA950DJ-T1-GE3 (Lead (Pb)-free and Halogen-free)



N-Channel MOSFET



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS T _A = 25 °C, unless otherwise noted				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	190	V
Gate-Source Voltage		V _{GS}	± 16	
Continuous Drain Current (T _J = 150 °C)	T _C = 25 °C	I _D	0.95	A
	T _C = 70 °C		0.76	
	T _A = 25 °C		0.47 ^{b, c}	
	T _A = 70 °C		0.38 ^{b, c}	
Pulsed Drain Current		I _{DM}	1	
Continuous Source-Drain Diode Current	T _C = 25 °C	I _S	0.95	
	T _A = 25 °C		0.47 ^{b, c}	
Maximum Power Dissipation	T _C = 25 °C	P _D	7	W
	T _C = 70 °C		5	
	T _A = 25 °C		1.9 ^{b, c}	
	T _A = 70 °C		1.2 ^{b, c}	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	- 55 to 150	°C
Soldering Recommendations (Peak Temperature) ^{d, e}			260	

New Product

SiA950DJ

Vishay Siliconix



THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, f}	$t \leq 5 \text{ s}$	R_{thJA}	52	65	°C/W
Maximum Junction-to-Case (Drain)	Steady State	R_{thJC}	12.5	16	

Notes:

a. $T_C = 25 \text{ °C}$.

b. Surface Mounted on 1" x 1" FR4 board.

c. $t = 5 \text{ s}$.

d. See Solder Profile (www.vishay.com/ppg?73257). The PowerPAK SC-70 is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.

e. Rework Conditions: manual soldering with a soldering iron is not recommended for leadless components.

f. Maximum under Steady State conditions is 110 °C/W.

SPECIFICATIONS $T_J = 25 \text{ °C}$, unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	190			V
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA		200		mV/°C
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J			- 3.0		
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.6		1.4	V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 16 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 190 V, V _{GS} = 0 V			1	μA
		V _{DS} = 190 V, V _{GS} = 0 V, T _J = 85 °C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	1			A
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 0.36 A		3.0	3.8	Ω
		V _{GS} = 2.5 V, I _D = 0.35 A		3.2	4.2	
		V _{GS} = 1.8 V, I _D = 0.15 A		3.5	17.0	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 0.36 A		2		S
Dynamic ^b						
Input Capacitance	C _{iss}	V _{DS} = 100 V, V _{GS} = 0 V, f = 1 MHz		90		pF
Output Capacitance	C _{oss}			5		
Reverse Transfer Capacitance	C _{rss}			3		
Total Gate Charge	Q _g	V _{DS} = 95 V, V _{GS} = 10 V, I _D = 0.47 A		3	4.5	nC
				1.4	2.1	
Gate-Source Charge	Q _{gs}	V _{DS} = 95 V, V _{GS} = 4.5 V, I _D = 0.47 A		0.25		
Gate-Drain Charge	Q _{gd}			0.40		
Gate Resistance	R _g	f = 1 MHz		2.3		Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 95 V, R _L = 250 Ω I _D ≅ 0.38 A, V _{GEN} = 4.5 V, R _g = 1 Ω		10	15	ns
Rise Time	t _r			15	25	
Turn-Off DelayTime	t _{d(off)}			25	40	
Fall Time	t _f			15	25	
Turn-On Delay Time	t _{d(on)}	V _{DD} = 95 V, R _L = 250 Ω I _D ≅ 0.38 A, V _{GEN} = 10 V, R _g = 1 Ω		3	10	
Rise Time	t _r			12	20	
Turn-Off DelayTime	t _{d(off)}			10	15	
Fall Time	t _f			10	15	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			0.95	A
Pulse Diode Forward Current	I _{SM}				1	
Body Diode Voltage	V _{SD}	I _S = 0.5 A, V _{GS} = 0 V		0.8	1.2	V

New Product



SiA950DJ
Vishay Siliconix

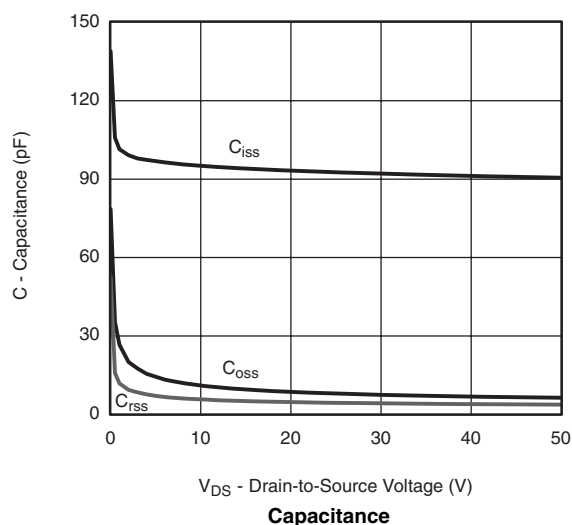
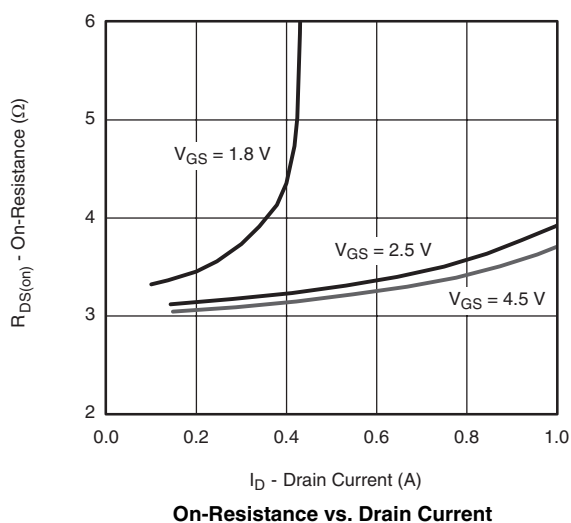
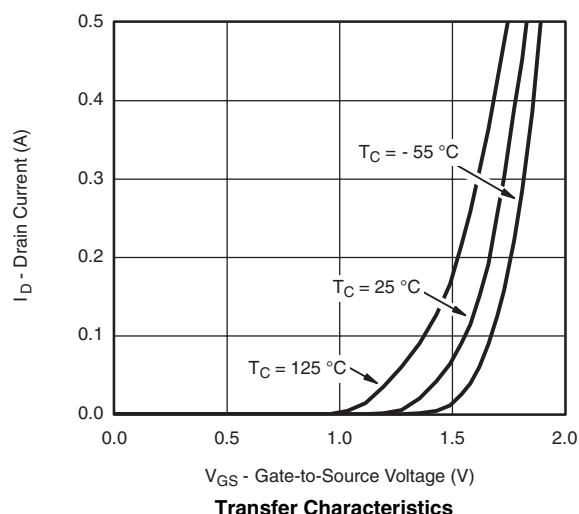
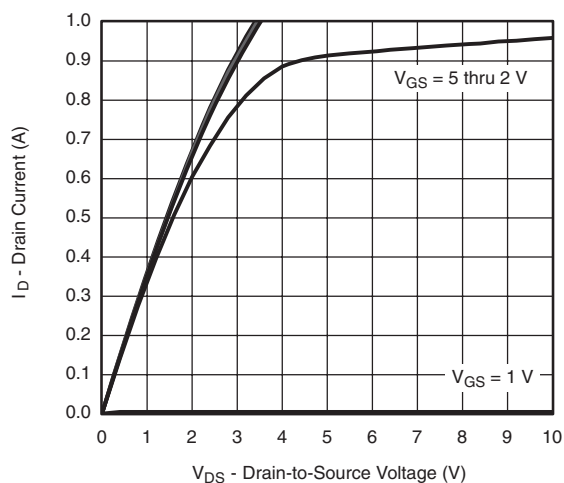
SPECIFICATIONS $T_J = 25^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Body Diode Characteristics						
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 0.5\text{ A}$, $dI/dt = 100\text{ A}/\mu\text{s}$, $T_J = 25^\circ\text{C}$		45	70	ns
Body Diode Reverse Recovery Charge	Q_{rr}			45	70	nC
Reverse Recovery Fall Time	t_a			21		ns
Reverse Recovery Rise Time	t_b			24		

Notes:

- Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, unless otherwise noted



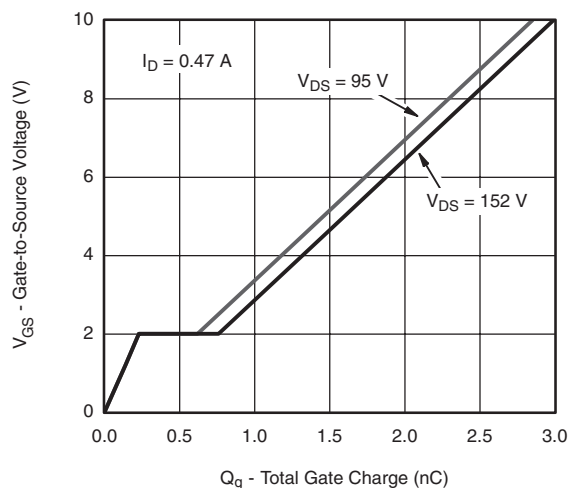
New Product

SiA950DJ

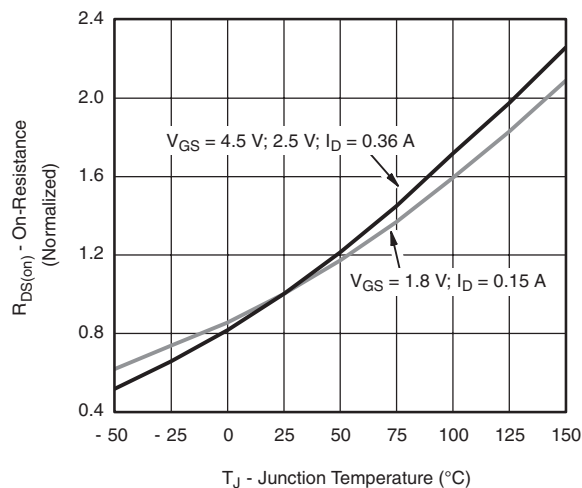
Vishay Siliconix



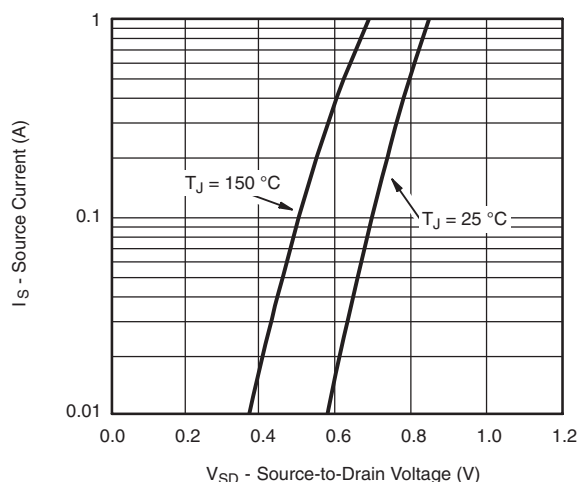
TYPICAL CHARACTERISTICS $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise noted



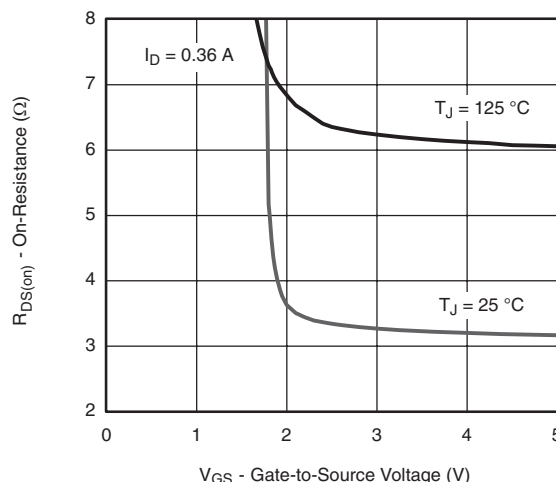
Gate Charge



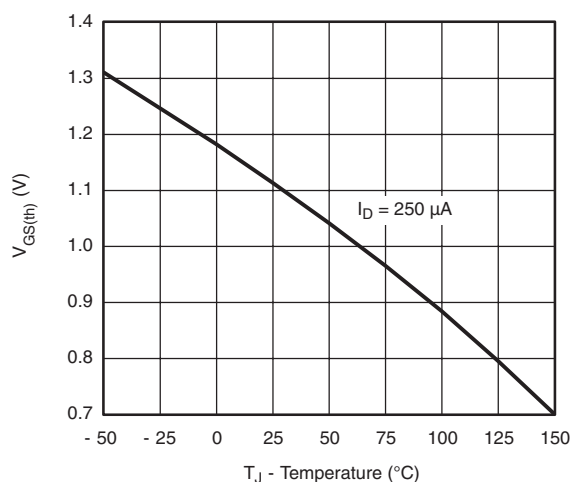
On-Resistance vs. Junction Temperature



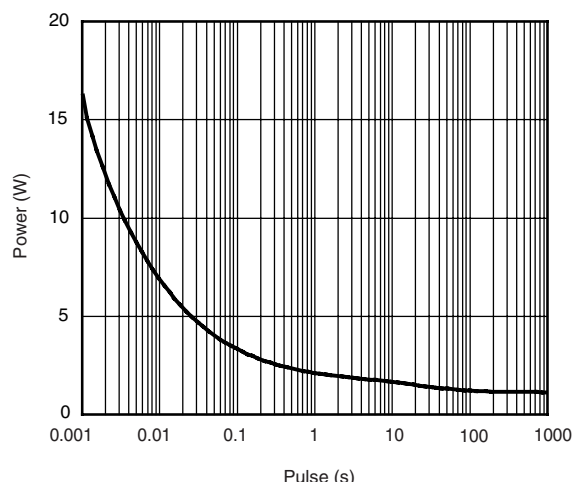
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



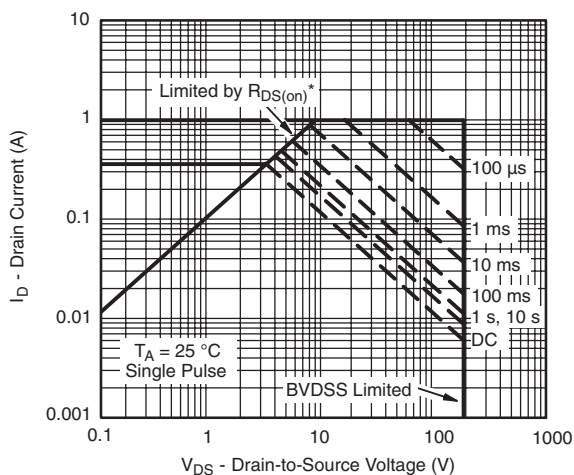
Single Pulse Power (Junction-to-Ambient)

New Product



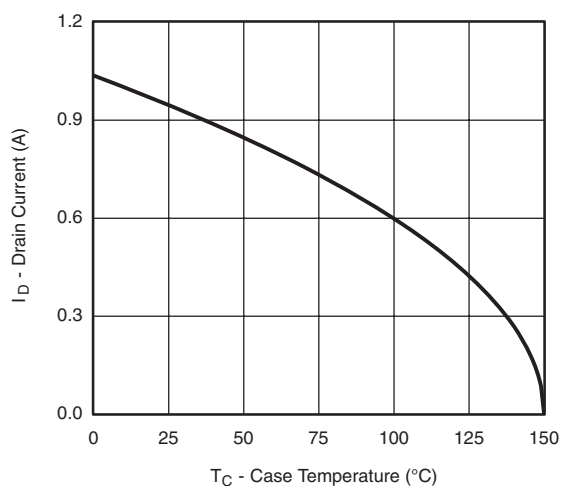
SiA950DJ
Vishay Siliconix

TYPICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, unless otherwise noted

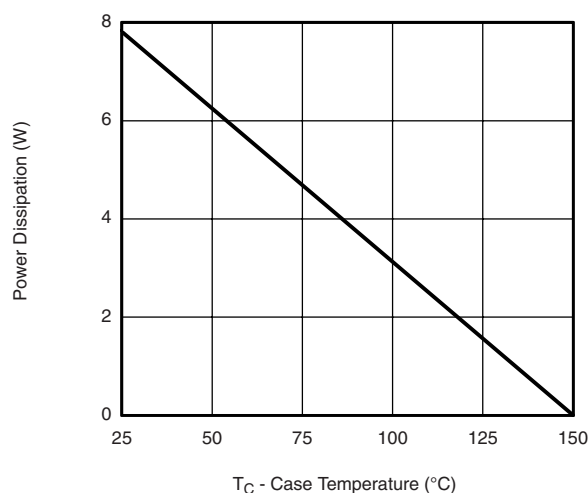


* $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area, Junction-to-Ambient



Current Derating*



Power Derating

* The power dissipation P_D is based on $T_{J(max)} = 150^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.

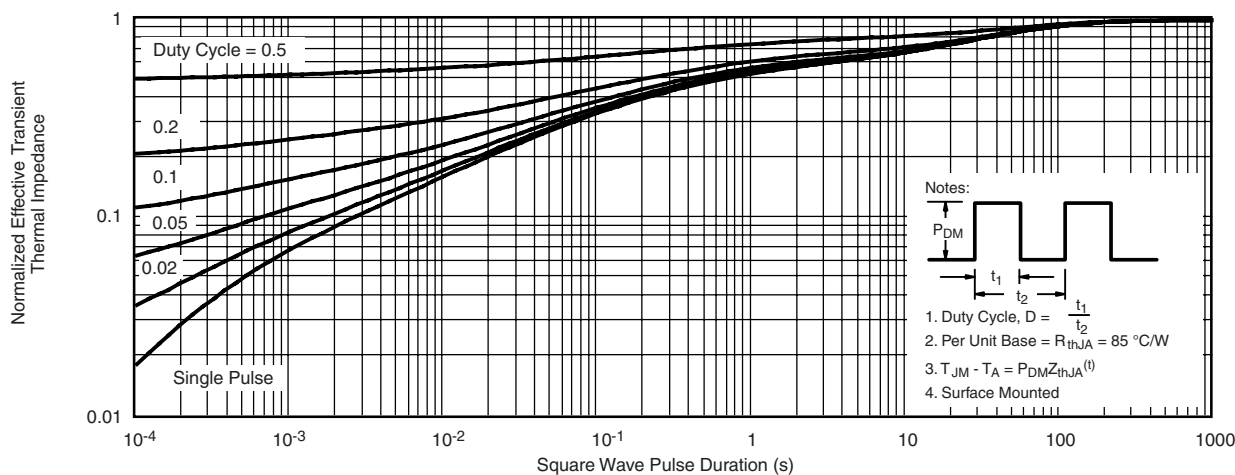
New Product

SiA950DJ

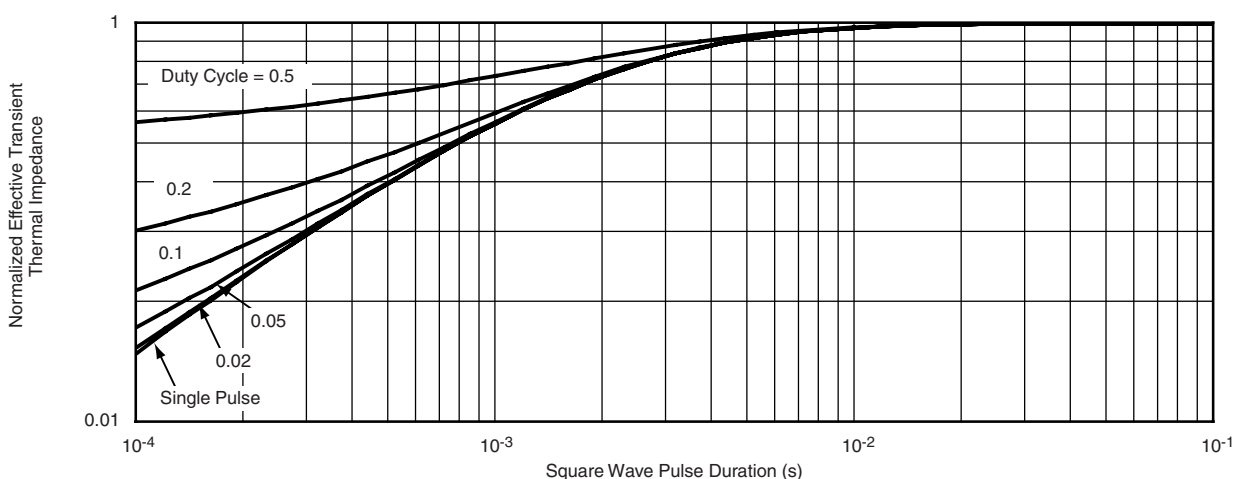
Vishay Siliconix



TYPICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, unless otherwise noted



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see www.vishay.com/ppg?64712.



Legal Disclaimer Notice

Vishay

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.