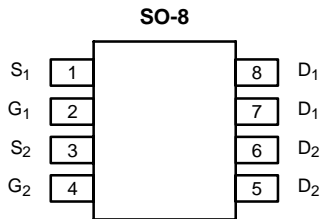


## Dual N-Channel 30-V (D-S) MOSFET with Schottky Diode

PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
30	0.022 @ V <sub>GS</sub> = 10 V	7.5
	0.030 @ V <sub>GS</sub> = 4.5 V	6.5

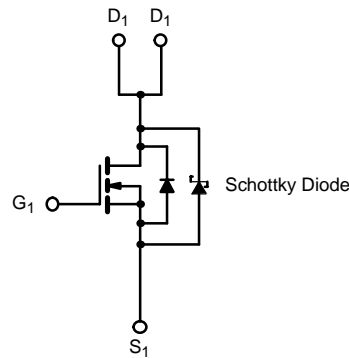
SCHOTTKY PRODUCT SUMMARY		
V <sub>DS</sub> (V)	V <sub>SD</sub> (V) Diode Forward Voltage	I <sub>F</sub> (A)
30	0.50 V @ 1.0 A	2.0

**LITTLE FOOT PLUS™**

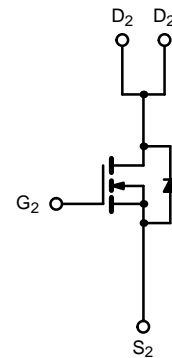


Top View

Ordering Information: Si4834DY  
Si4834DY-T1 (with Tape and Reel)



N-Channel MOSFET



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	V <sub>DS</sub>	30		V	
Gate-Source Voltage	V <sub>GS</sub>	± 20			
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	7.5	5.7	A
		T <sub>A</sub> = 70 °C	6.0	4.6	
Pulsed Drain Current	I <sub>DM</sub>	30		A	
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	1.7	0.9		
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	2.0	1.1	W
		T <sub>A</sub> = 70 °C	1.3	0.7	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C	

THERMAL RESISTANCE RATINGS							
Parameter	Symbol	MOSFET		Schottky		Unit	
		Typ	Max	Typ	Max		
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	t ≤ 10 sec	52	62.5	53	62.5	°C/W
		Steady-State	93	110	93	110	
Maximum Junction-to-Foot (Drain)	R <sub>thJC</sub>	35	40	35	40		

Notes

a. Surface Mounted on 1" x 1" FR4 Board.

<b>MOSFET SPECIFICATIONS (<math>T_J = 25^\circ\text{C}</math> UNLESS OTHERWISE NOTED).</b>						
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	0.8			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$	Ch-1		100	$\mu\text{A}$
			Ch-2		1	
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 85^\circ\text{C}$	Ch-1		2000	
			Ch-2		15	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			A
Drain-Source On-State Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 7.5 \text{ A}$		0.018	0.022	$\Omega$
		$V_{GS} = 4.5 \text{ V}, I_D = 6.5 \text{ A}$		0.024	0.030	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = 15 \text{ V}, I_D = 7.5 \text{ A}$		22		S
Diode Forward Voltage <sup>b</sup>	$V_{SD}$	$I_S = 1 \text{ A}, V_{GS} = 0 \text{ V}$	Ch-1	0.47	0.5	V
			Ch-2	0.8	1.2	
<b>Dynamic<sup>a</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 7.5 \text{ A}$		13	20	nC
Gate-Source Charge	$Q_{gs}$			2		
Gate-Drain Charge	$Q_{gd}$			2.7		
Gate Resistance	$R_g$		0.5	1.9	3.2	$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15 \text{ V}, R_L = 15 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$		8	16	ns
Rise Time	$t_r$			10	20	
Turn-Off Delay Time	$t_{d(off)}$			21	40	
Fall Time	$t_f$			10	20	
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 1.7 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$	Ch-1	32	70	
			Ch-2	40	80	

## Notes

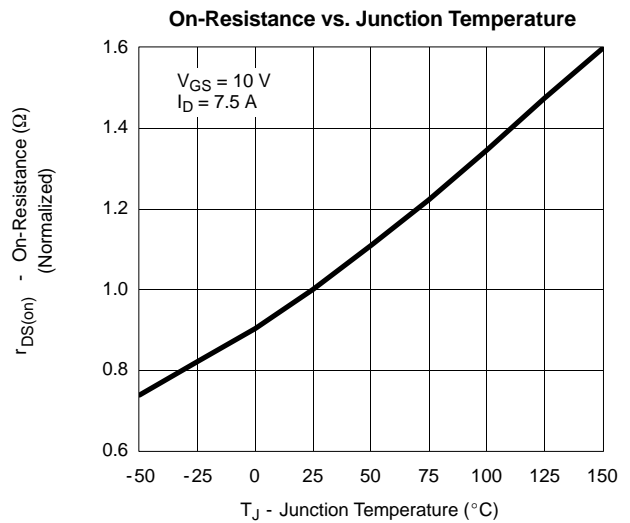
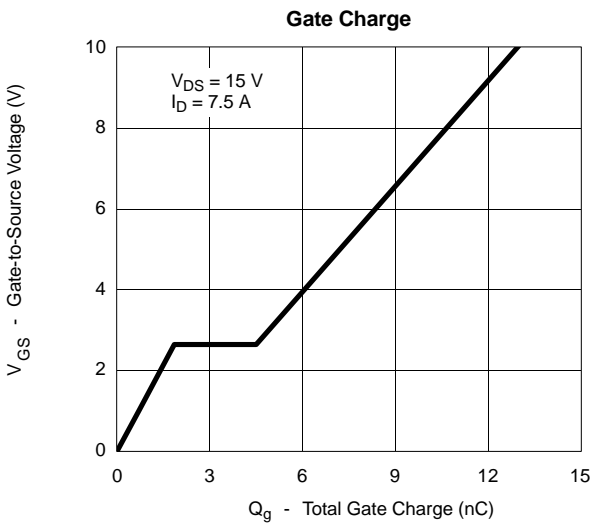
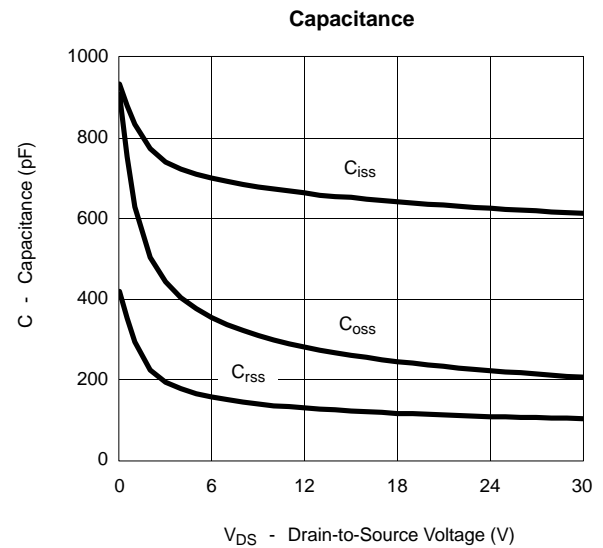
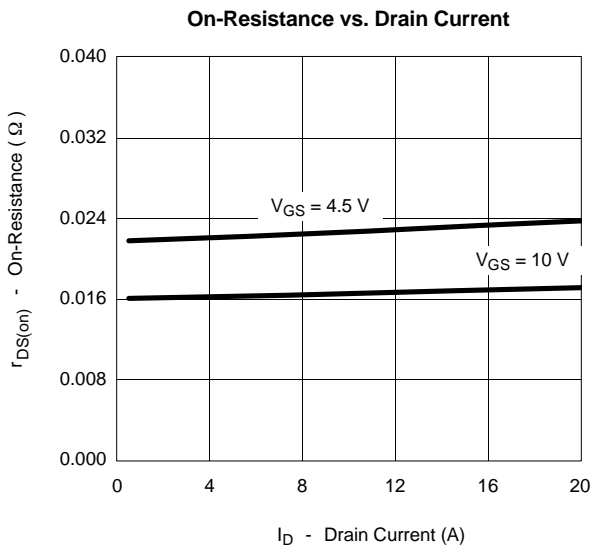
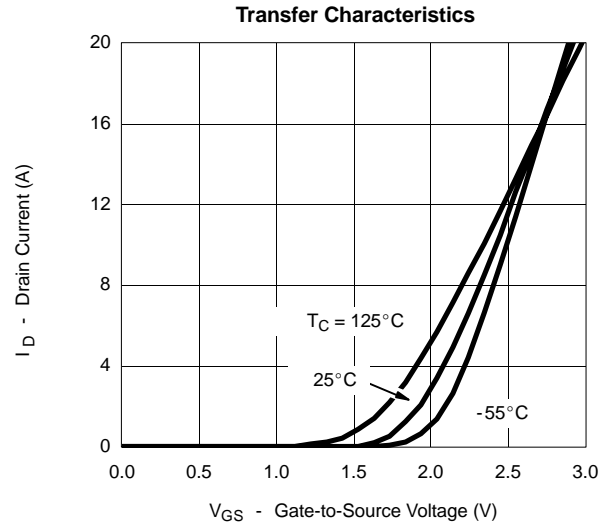
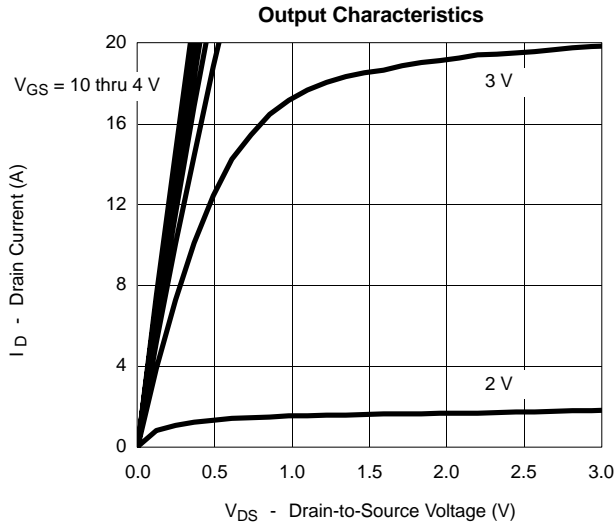
- a. Guaranteed by design, not subject to production testing.  
 b. Pulse test; pulse width  $\leq 300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .

<b>SCHOTTKY SPECIFICATIONS (<math>T_J = 25^\circ\text{C}</math> UNLESS OTHERWISE NOTED)</b>						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage Drop	$V_F$	$I_F = 1.0 \text{ A}$		0.47	0.50	V
		$I_F = 1.0 \text{ A}, T_J = 125^\circ\text{C}$		0.36	0.42	
Maximum Reverse Leakage Current	$I_{rm}$	$V_r = 30 \text{ V}$		0.004	0.100	mA
		$V_r = 30 \text{ V}, T_J = 100^\circ\text{C}$		0.7	10	
		$V_r = -30 \text{ V}, T_J = 125^\circ\text{C}$		3.0	20	
Junction Capacitance	$C_T$	$V_r = 10 \text{ V}$		50		pF



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

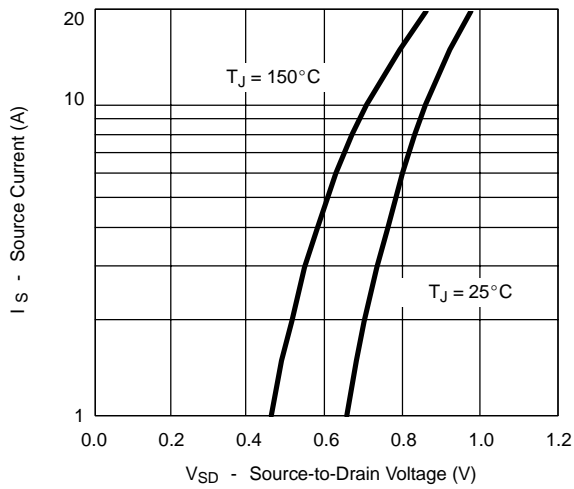
**MOSFET**



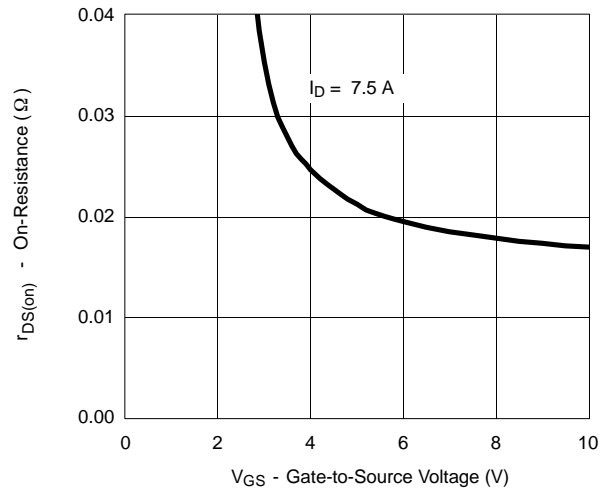
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

**MOSFET**

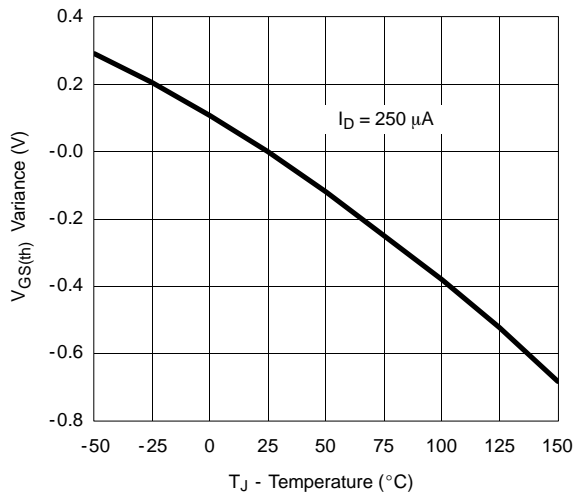
Source-Drain Diode Forward Voltage



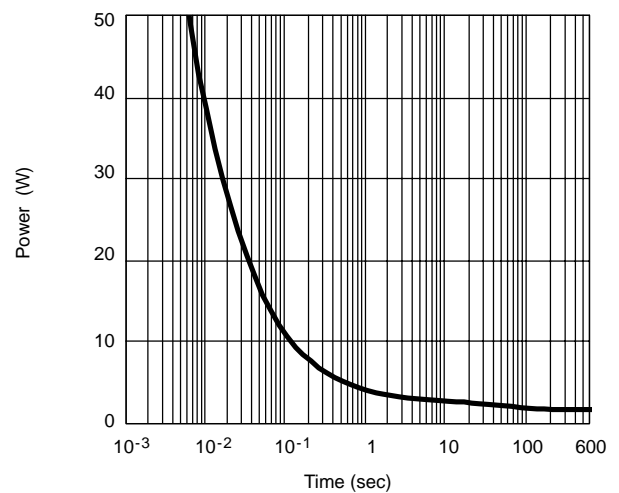
On-Resistance vs. Gate-to-Source Voltage



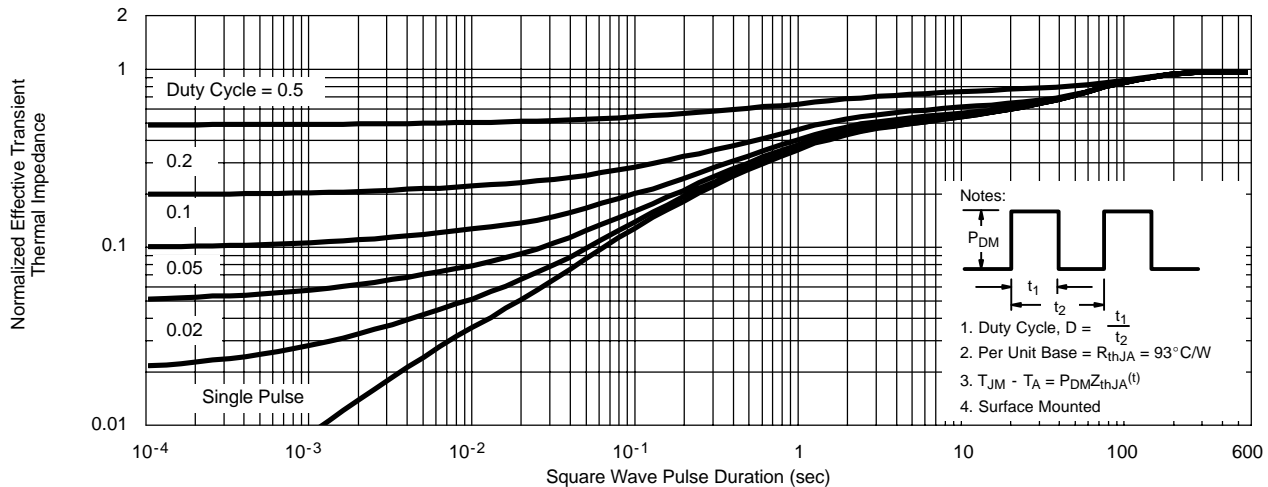
Threshold Voltage



Single Pulse Power



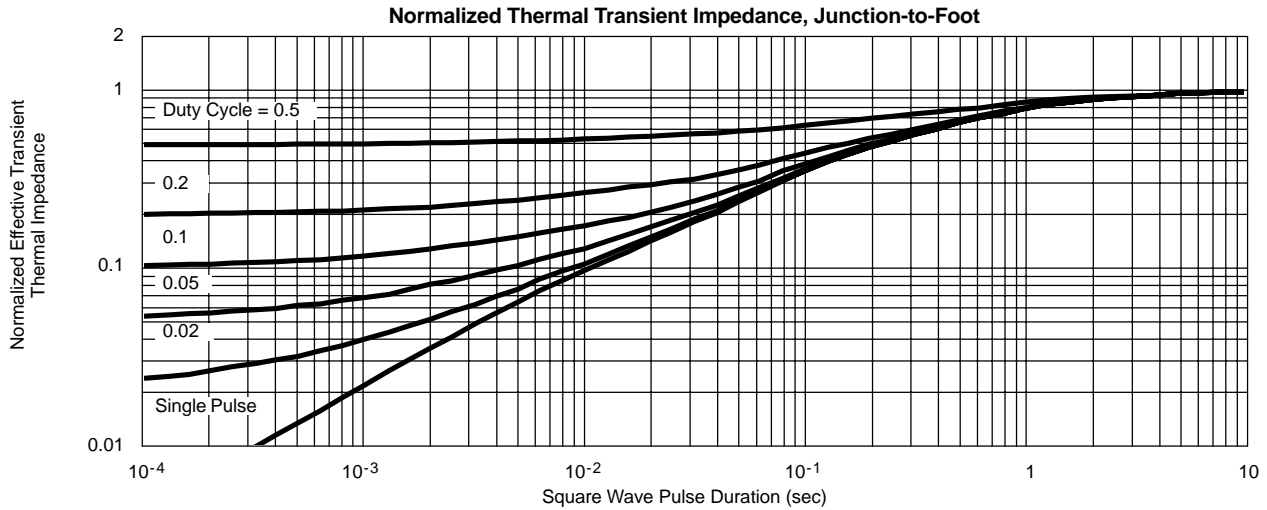
Normalized Thermal Transient Impedance, Junction-to-Ambient





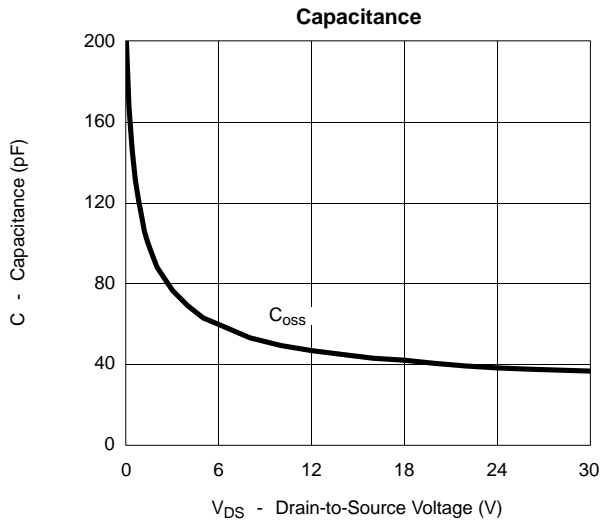
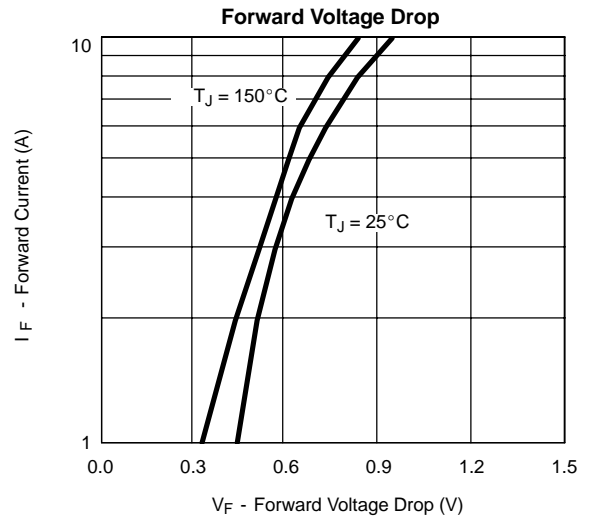
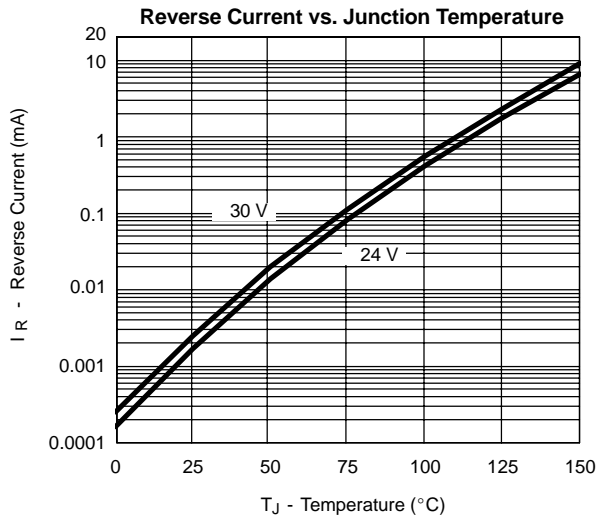
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

**MOSFET**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

**SCHOTTKY**





## Notice

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

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay 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 Vishay for any damages resulting from such improper use or sale.