

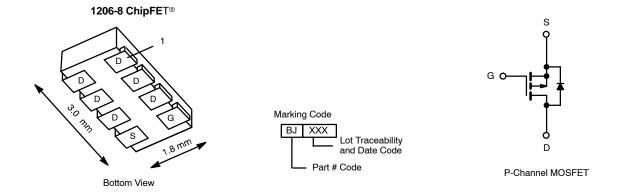
New Product

P-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY				
V _{DS} (V)	$r_{DS(on)}(\Omega)$	I _D (A)		
-30	$0.045 @ V_{GS} = -10 V$	-5.9		
	0.080 @ V _{GS} = -4.5 V	-4.4		

FEATURES

TrenchFET® Power MOSFETS



Ordering Information: Si5435BDC-T1—E3

ABSOLUTE MAXIMUM RATING	is (T _A = 25°C UN	LESS OTHE	RWISE NO	OTED)		
Parameter		Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage		V _{DS}	-30		V	
Gate-Source Voltage		V _{GS}	±20			
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	-5.9	-4.3	A	
	T _A = 85°C		-4.3	-3.1		
Pulsed Drain Current		I _{DM}	-30		^	
Continuous Source Current ^a		I _S	-2.1	-1.1		
Mariana Dania Diakata	T _A = 25°C		2.5	1.3		
Maximum Power Dissipation ^a	T _A = 85°C	P _D	1.3	0.7	W	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C		
Soldering Recommendations (Peak Temperature)b, c			260			

THERMAL RESISTANCE RATINGS						
Parameter		Symbol	Typical	Maximum	Unit	
	t ≤ 5 sec	R _{thJA}	40	50		
Maximum Junction-to-Ambient ^a	Steady State		80	95	°C/W	
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	15	20		

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

 See Reliability Manual for profile. The ChipFET 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 intercon-
- Rework Conditions: manual soldering with a soldering iron is not recommended for leadless components.

Vishay Siliconix

New Product



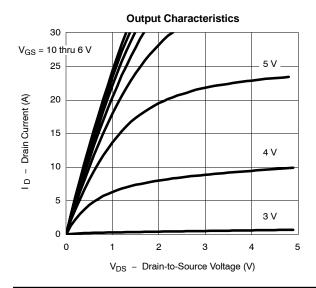
SPECIFICATIONS (T _J = 25°C UNLESS OTHERWISE NOTED)								
Parameter	Symbol	Test Condition	Min	Тур	Max	Unit		
Static								
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-1		-3	V		
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA		
Zero Gate Voltage Drain Current	I _{DSS}	$V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}$ $V_{DS} = -30 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 85^{\circ}\text{C}$	5°C		-1 -5	μΑ		
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \leq -5 \text{ V}, V_{GS} = -10 \text{ V}$	-30			Α		
Drain-Source On-State Resistancea	_	$V_{GS} = -10 \text{ V}, I_D = -4.3 \text{ A}$		0.035	0.045	Ω		
Drain-Source On-State Resistance	r _{DS(on)}	$V_{GS} = -4.5 \text{ V}, I_D = -1.3 \text{ A}$		0.065	0.080	Ω		
Forward Transconductancea	9 _{fs}	V _{DS} = -15 V, I _D = -4.3 A		14		S		
Diode Forward Voltage ^a	V _{SD}	I _S = -1.1 A, V _{GS} = 0 V		-0.8	-1.2	V		
Dynamic ^b								
Total Gate Charge	Q_g			16	24	nC		
Gate-Source Charge	Q _{gs}	V_{DS} = -15 V, V_{GS} = -10 V, I_D = -4.3 A		2.7				
Gate-Drain Charge	Q _{gd}			4.1				
Gate Resistance	Rg	f = 1 MHz		8.5		Ω		
Turn-On Delay Time	t _{d(on)}			8	15			
Rise Time	t _r	V _{DD} = -15 V, R _I = 15 Ω		12	20	ns		
Turn-Off Delay Time	t _{d(off)}	V_{DD} = -15 V, R_L = 15 Ω $I_D \cong -1$ A, V_{GEN} = -10 V, R_g = 6 Ω		32	50			
Fall Time	t _f			20	30	1		
Source-Drain Reverse Recovery Time	t _{rr}	$I_F = -1.1 \text{ A, di/dt} = 100 \text{ A/}\mu\text{s}$		25	50	1		

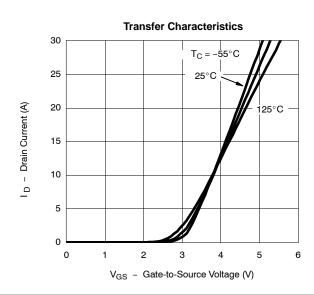
Notes

- Pulse test; pulse width \leq 300 μ 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 (25°C UNLESS NOTED)







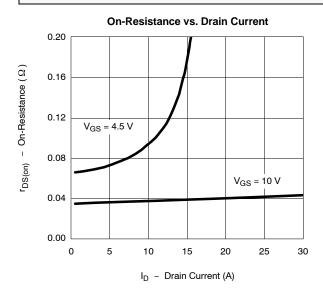


V_{GS} - Gate-to-Source Voltage (V)

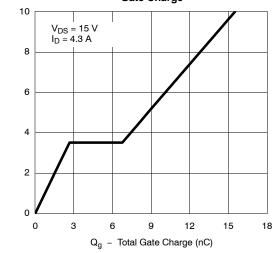
Source Current (A)

New Product

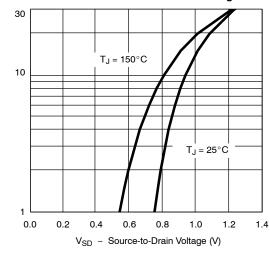
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

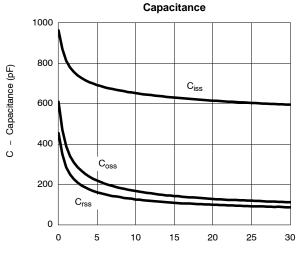






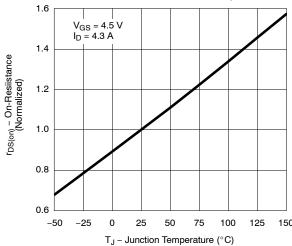
Source-Drain Diode Forward Voltage



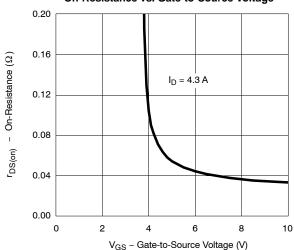


V_{DS} - Drain-to-Source Voltage (V)

On-Resistance vs. Junction Temperature



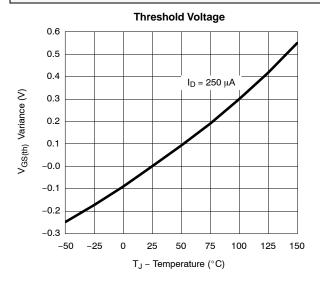
On-Resistance vs. Gate-to-Source Voltage

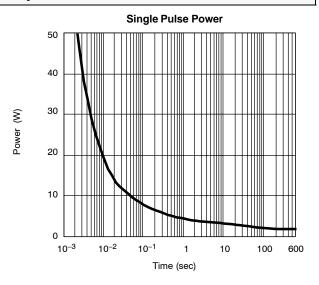


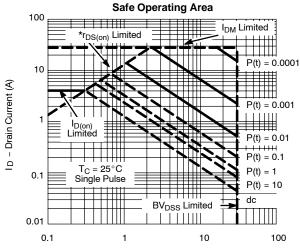
New Product



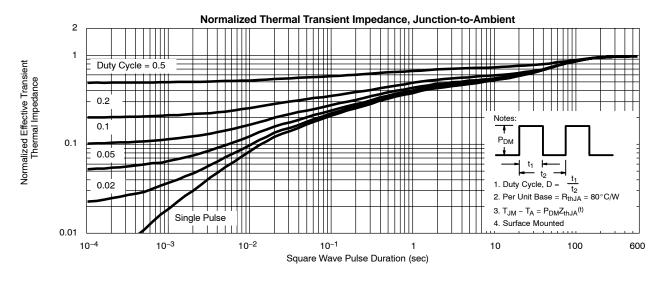
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)







 $\begin{array}{ccc} V_{DS} & - \text{ Drain-to-Source Voltage (V)} \\ ^*V_{GS} > \text{ minimum } V_{GS} \text{ at which } r_{DS(on)} \text{ is specified} \end{array}$

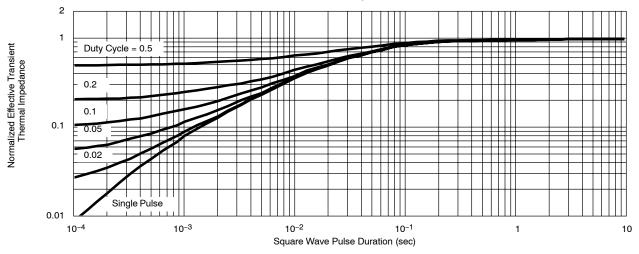


New Product

Vishay Siliconix

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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 http://www.vishay.com/ppg?73137.



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.

Revision: 18-Jul-08

Document Number: 91000 www.vishay.com