BS107PSTOA Datasheet

DiGi Electronics Part Number	BS107PSTOA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	BS107PSTOA
Description	MOSFET N-CH 200V 120MA E-LINE
Detailed Description	N-Channel 200 V 120mA (Ta) 500mW (Ta) Through Hole E-Line (TO-92 compatible)

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
BS107PSTOA	Diodes Incorporated
Series:	Product Status:
-	Obsolete
FET Type:	Technology:
N-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
200 V	120mA (Ta)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
2.6V, 5V	30Ohm @ 100mA, 5V
Vgs(th) (Max) @ Id:	Vgs (Max):
-	±20V
FET Feature:	Power Dissipation (Max):
-	500mW (Ta)
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Through Hole
Supplier Device Package:	Package / Case:
E-Line (TO-92 compatible)	E-Line-3
Base Product Number:	
BS107	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

Lead-free Green

BS107P

200V N-CHANNEL ENHANCEMENT MODE VERTICAL DMOSFET

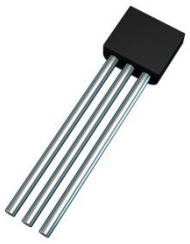
Features

- BV_{DSS} > 200V
- $R_{DS(ON)}$ ≤ 23Ω @ V_{GS}= 2.6V
- I_D = 120mA Maximum Continuous Drain Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q101, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q101) for High Reliability.**
- **https://www.diodes.com/quality/product-definitions/**

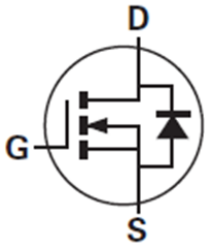
Mechanical Data

- Case: E-Line (TO-92 Compatible)
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Rating 94V-0
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.159 grams (Approximate)

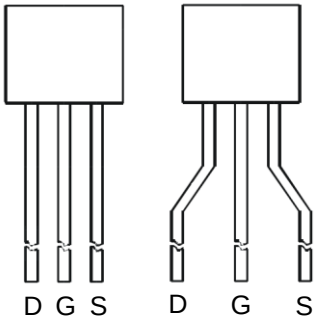
E-Line
(TO-92 Compatible)



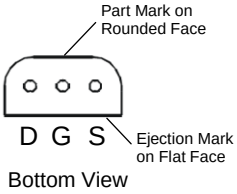
Flat Face View



Device Symbol



Rounded Face View



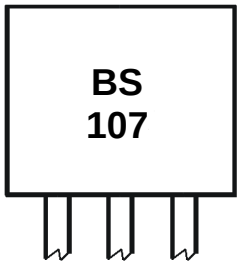
Bottom View

Ordering Information (Note 4)

Product	Marking	Package	Leads	Quantity
BS107P	BS107	E-Line	Straight	4,000 Loose in a Box
BS107PSTZ	BS107	E-Line	Joggled	2,000 Taped per Ammo Box

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



Rounded Face View

BS107 = Product Type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	200	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	120	mA
Pulsed Drain Current	I_{DM}	2	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	500	mW
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Leads	(Note 6)	$R_{\theta JL}$	71	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

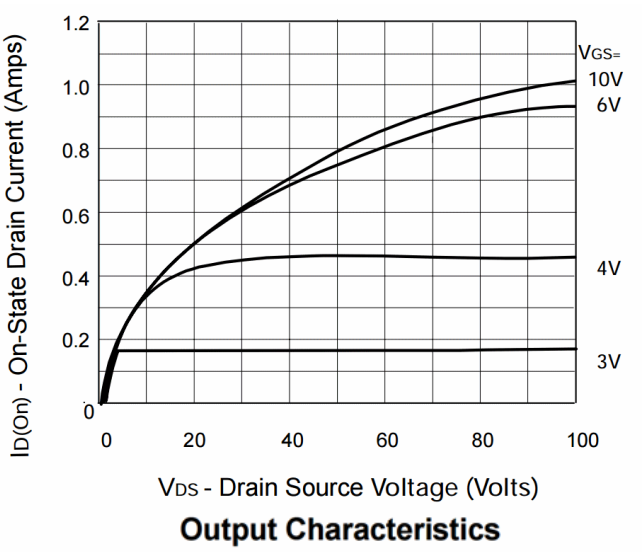
Notes: 5. For a through-hole device mounted on the minimum recommended pad layout with 12mm lead length from the bottom of package to the single-sided FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Thermal resistance from junction to solder-point at the seating plane (2.5mm from the bottom of package along the drain lead).

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

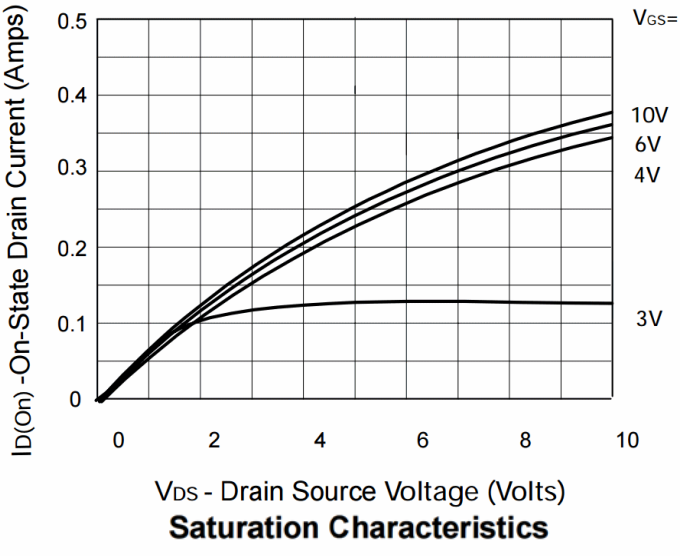
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	200	230	—	V	I_D = 100µA, V_{GS} = 0V
Zero Gate Voltage Drain Current	I_{DSS}	—	—	30	nA	V_{DS} = 130V, V_{GS} = 0V
Drain Cut-Off Current	I_{DSX}	—	—	1	µA	V_{DS} = 70V, V_{GS} = 0.2V
Gate-Source Leakage	I_{GSS}	—	—	±10	nA	V_{GS} = ±15V, V_{DS} = 0V
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	1.0	—	3.0	V	I_D = 1mA, V_{DS} = V_{GS}
Static Drain-Source On-Resistance (Note 7)	$R_{DS(ON)}$	—	15	23	Ω	V_{GS} = 2.6V, I_D = 25mA
			—	30		V_{GS} = 5V, I_D = 100mA
Forward Transconductance (Notes 7 & 9)	g_{fs}	100	—	—	mS	V_{DS} = 25V, I_D = 250mA
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C_{iss}	—	—	85	pF	V_{DS} = 25V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	—	20		
Reverse Transfer Capacitance	C_{rss}	—	—	7		
Turn-On Delay Time (Note 8)	$t_{D(ON)}$	—	—	7	ns	V_{DD} = 25V, I_D = 250mA
Turn-On Rise Time (Note 8)	t_R	—	—	8		
Turn-Off Delay Time (Note 8)	$t_{D(OFF)}$	—	—	16		
Turn-Off Fall Time (Note 8)	t_F	—	—	8		

Notes: 7. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.
8. Switching characteristics are independent of operating junction temperature. Switching times are measured with 50Ω source impedance and <5ns rise time on a pulse generator.
9. For design aid only, not subject to production testing.

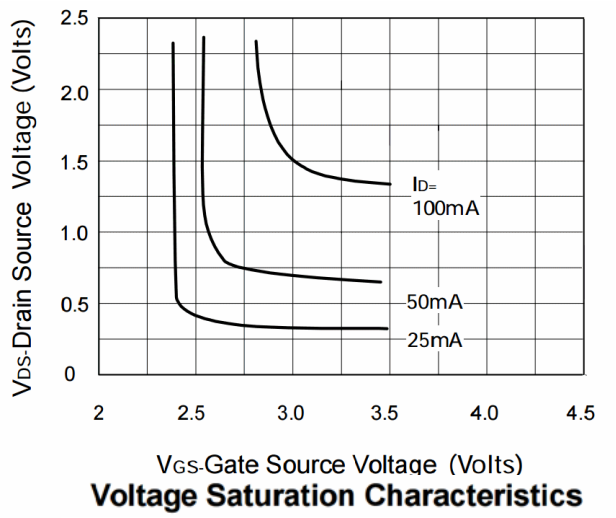
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



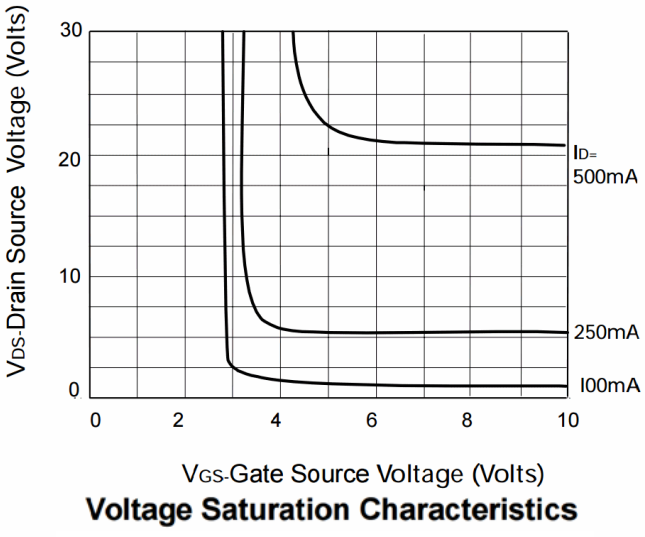
Output Characteristics



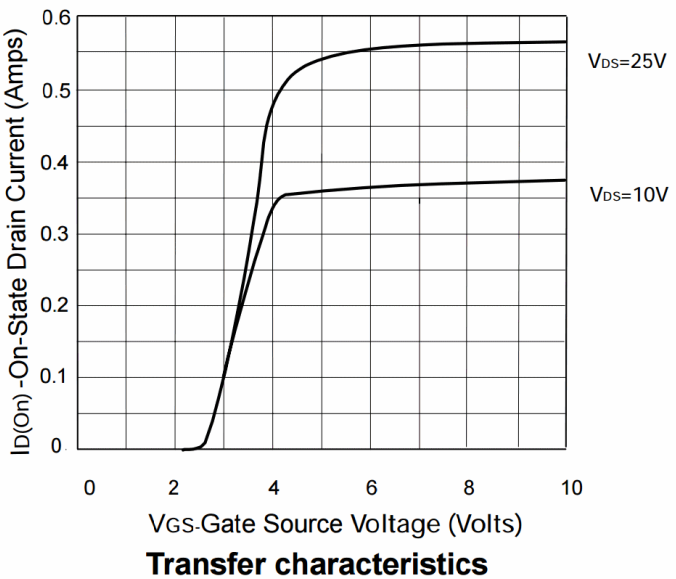
Saturation Characteristics



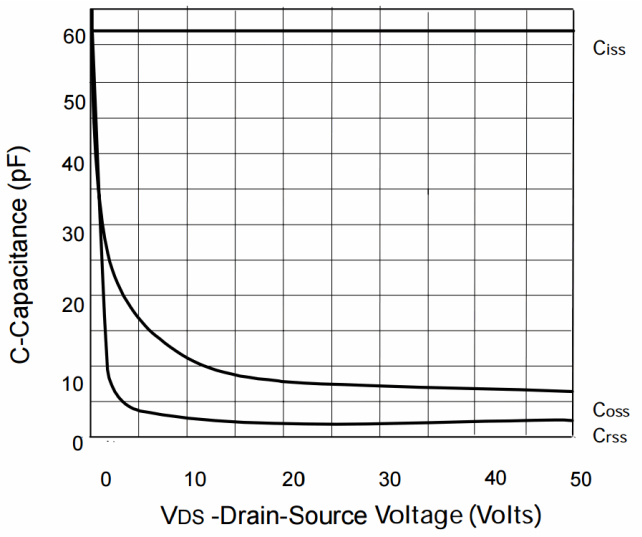
Voltage Saturation Characteristics



Voltage Saturation Characteristics



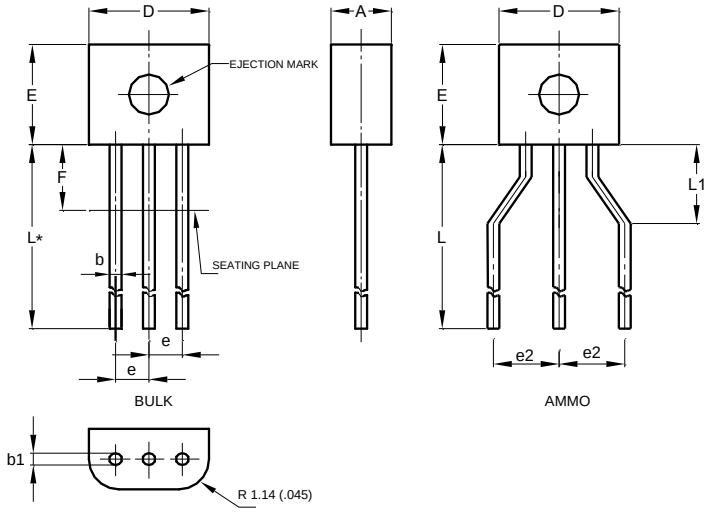
Transfer characteristics



Capacitance v drain-source voltage

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.



E-Line			
Dim	**Min**	**Max**	**Typ**
A	2.16	2.41	–
b	0.41	0.495	–
b1	0.41	0.495	–
D	4.37	4.77	–
E	3.61	4.01	–
e	–	–	1.27
e2	–	–	2.54
F	–	2.50	–
L	13.00	13.97	–
L1	2.50	3.50	–
All Dimensions in mm			

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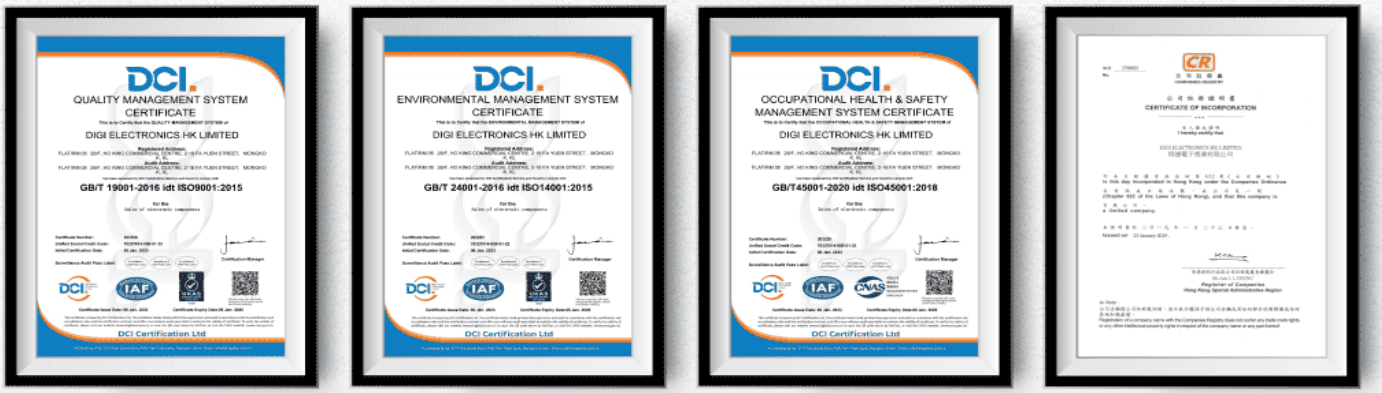

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