Is Now Part of

ON Semiconductor®

To learn more about ON Semiconductor, please visit our website at
www.onsemi.com

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

April 2015

NDT2955

P-Channel Enhancement Mode Field Effect Transistor

General Description

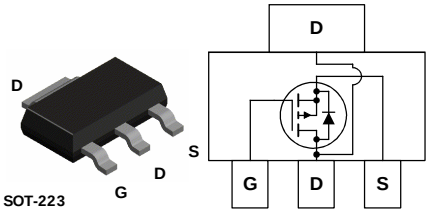
This 60V P-Channel MOSFET is produced using Fairchild Semiconductor's high voltage Trench process. It has been optimized for power management plications.

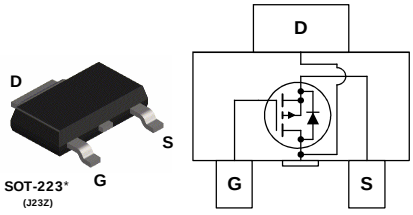
Applications

- DC/DC converter
- Power management

Features

- –2.5 A, –60 V. $R_{DS(ON)}$ = 300mΩ @ V_{GS} = –10 V
  $R_{DS(ON)}$ = 500mΩ @ V_{GS} = –4.5 V
- High density cell design for extremely low $R_{DS(ON)}$
- High power and current handling capability in a widely used surface mount package.





Absolute Maximum Ratings

T_A=25°C unless otherwise noted

Symbol	Parameter		Ratings	Units
V_{DSS}	Drain-Source Voltage		–60	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Drain Current – Continuous	(Note 1a)	–2.5	A
	– Pulsed		–15	
P_D	Maximum Power Dissipation	(Note 1a)	3.0	W
		(Note 1b)	1.3	
		(Note 1c)	1.1	
T_J, T_{STG}	Operating and Storage Junction Temperature Range		–55 to +150	°C

Thermal Characteristics

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	(Note 1a)	42	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	(Note 1)	12	

Package Marking and Ordering Information

Device Marking	Device	Reel Size	Tape width	Quantity
2955	NDT2955	13''	12mm	2500 units

Electrical Characteristics

T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Avalanche Ratings						
W_{DSS}	Drain-Source Avalanche Energy	Single Pulse, V_{DD} = 30 V, I_D = 2.5 A			174	mJ
Off Characteristics						
BV_{DSS}	Drain–Source Breakdown Voltage	V_{GS} = 0 V, I_D = –250 µA	–60			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Breakdown Voltage Temperature Coefficient	I_D = –250 µA, Referenced to 25°C		–60		mV/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = –60 V, V_{GS} = 0 V			–10	µA
I_{GSSF}	Gate–Body Leakage, Forward	V_{GS} = –20 V, V_{DS} = 0 V			100	nA
I_{GSSR}	Gate–Body Leakage, Reverse	V_{GS} = –20 V, V_{DS} = 0 V			–100	nA
On Characteristics (Note 2)						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = –250 µA	–2	–2.6	–4	V
$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	Gate Threshold Voltage Temperature Coefficient	I_D = –250 µA, Referenced to 25°C		5.7		mV/°C
$R_{DS(on)}$	Static Drain–Source On–Resistance	V_{GS} = –10 V, I_D = –2.5 A V_{GS} = –4.5 V, I_D = –2 A V_{GS}=–10 V, I_D =–2.5 A, T_J=125°C		95 163 153	300 500 513	mΩ
$I_{D(on)}$	On–State Drain Current	V_{GS} = –10 V, V_{DS} = –5 V	–12			A
g_{FS}	Forward Transconductance	V_{DS} = –10 V, I_D = –2.5 A		5.5		S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = –30 V, V_{GS} = 0 V, f = 1.0 MHz		601		pF
C_{oss}	Output Capacitance			85		pF
C_{rss}	Reverse Transfer Capacitance			35		pF
Switching Characteristics (Note 2)						
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = –30 V, I_D = –1 A, V_{GS} = –10 V, R_{GEN} = 6 Ω		12	21	ns
t_r	Turn–On Rise Time			10	20	ns
$t_{d(off)}$	Turn–Off Delay Time			19	34	ns
t_f	Turn–Off Fall Time			6	12	ns
Q_g	Total Gate Charge	V_{DS} = –30 V, I_D = –2.5 A, V_{GS} = –10 V		11	15	nC
Q_{gs}	Gate–Source Charge			2.4		nC
Q_{gd}	Gate–Drain Charge			2.7		nC
Drain–Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain–Source Diode Forward Current				–2.5	A
V_{SD}	Drain–Source Diode Forward Voltage	V_{GS} = 0 V, I_S = –2.5 A (Note 2)		–0.8	–1.2	V
t_{rr}	Diode Reverse Recovery Time	I_F = –2.5 A, d_{iF}/d_t = 100 A/µs		25		nS
Q_{rr}	Diode Reverse Recovery Charge			40		nC

Notes:

1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

a) 42°C/W when mounted on a 1in^2 pad of 2 oz copper

b) 95°C/W when mounted on a .0066 in^2 pad of 2 oz copper

c) 110°C/W when mounted on a minimum pad.

2. Pulse Test: Pulse Width < 300µs, Duty Cycle < 2.0%

Typical Characteristics

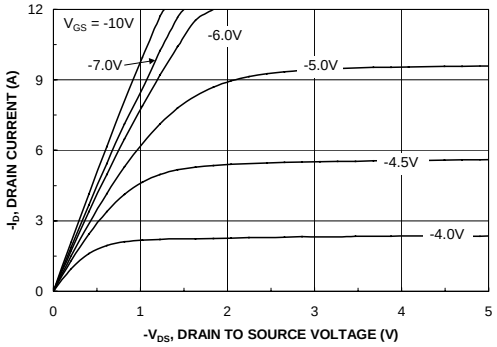


Figure 1. On-Region Characteristics.

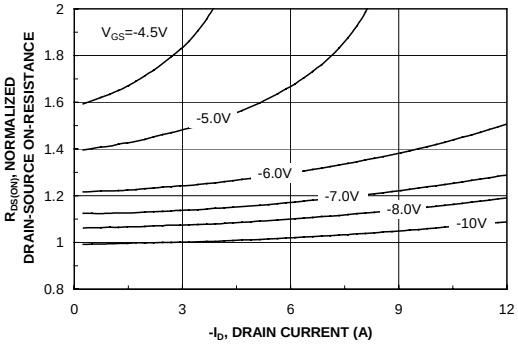


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

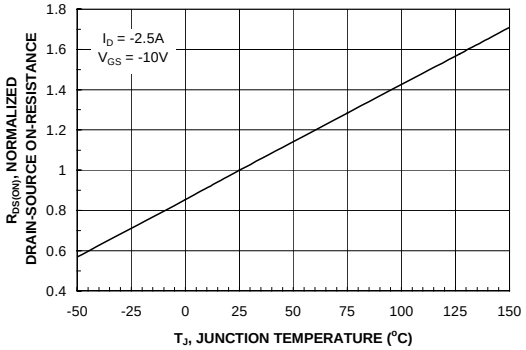


Figure 3. On-Resistance Variation withTemperature.

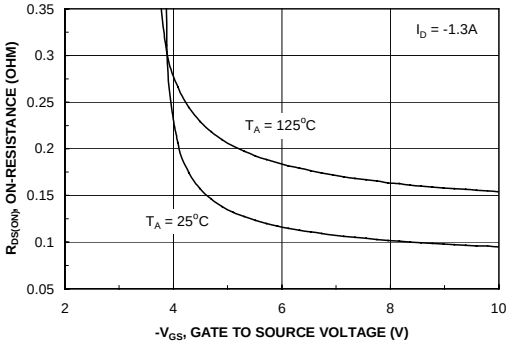


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

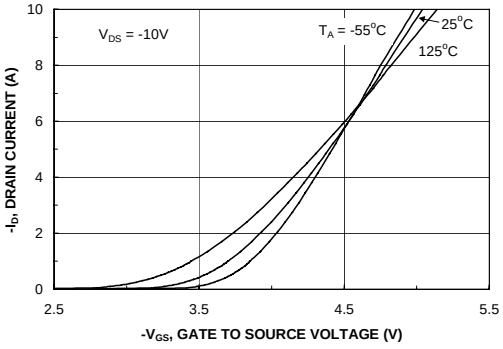


Figure 5. Transfer Characteristics.

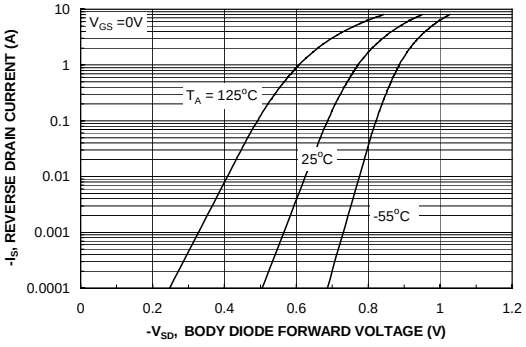
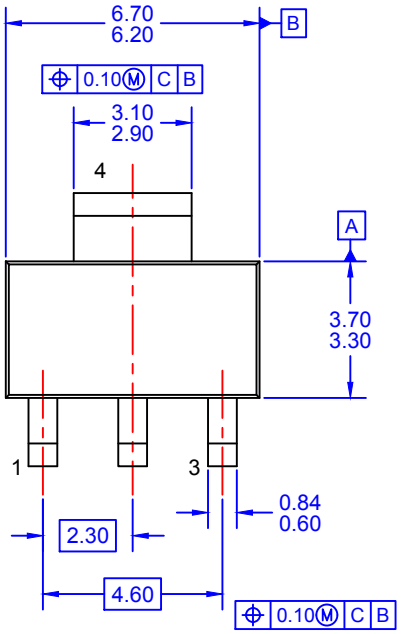
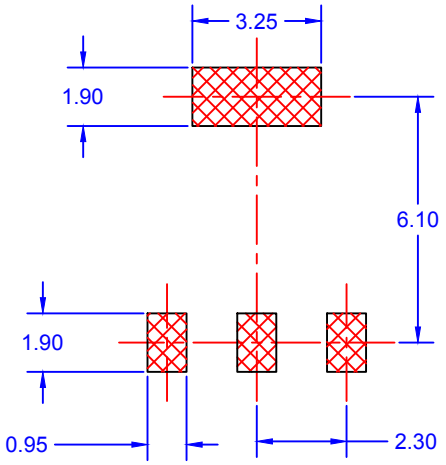
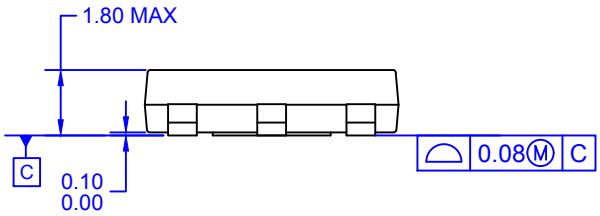


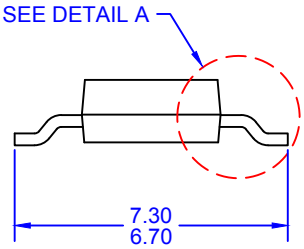
Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.



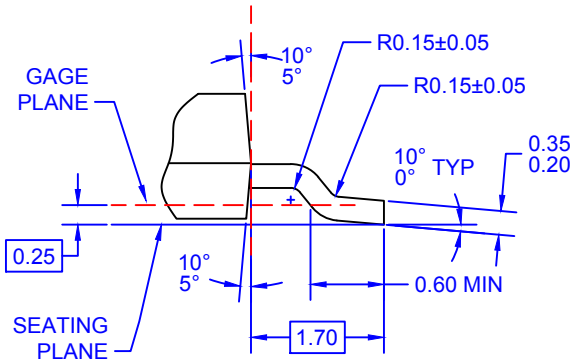


LAND PATTERN RECOMMENDATION





NOTES: UNLESS OTHERWISE SPECIFIED
A) DRAWING BASED ON JEDEC REGISTRATION TO-261C, VARIATION AA.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH. MOLD FLASH OR BURRS DOES NOT EXCEED 0.10MM.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
E) LANDPATTERN NAME: SOT230P700X180-4BN
F) DRAWING FILENAME: MKT-MA04AREV3



DETAIL A
SCALE: 2:1

FAIRCHILD

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5817−1050

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ON Semiconductor:

NDT2955

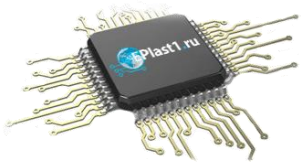
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.