

GSM4435S

30V P-Channel Enhancement Mode MOSFET

Product Description

GSM4435S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

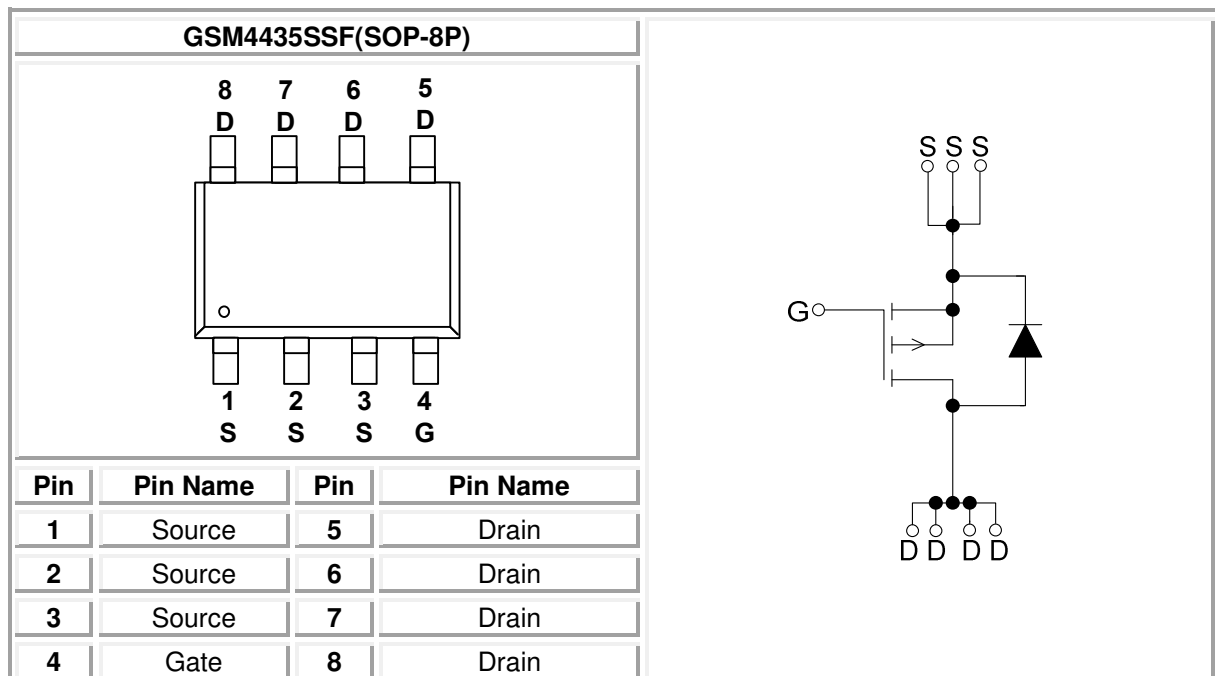
Features

- -30V/-9A, $R_{DS(ON)}=18m\Omega@V_{GS}=-10V$
- -30V/-7A, $R_{DS(ON)}=26m\Omega@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOP-8P package design

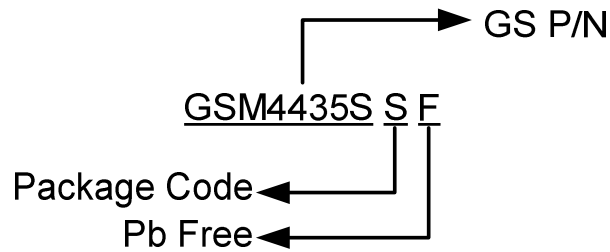
Applications

- LED Display
- Load Switch
- CCFL Inverter
- Power Management in Notebook Computer

Packages & Pin Assignments

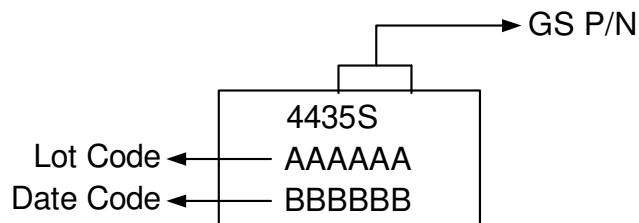


Ordering Information



Part Number	Package	Quantity Reel
GSM4435SSF	SOP-8P	4000 PCS

Marking Information



Absolute Maximum Ratings

$T_A=25^{\circ}\text{C}$ Unless otherwise noted

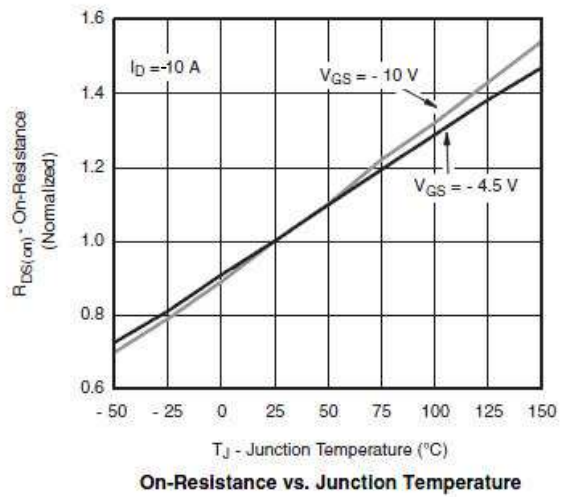
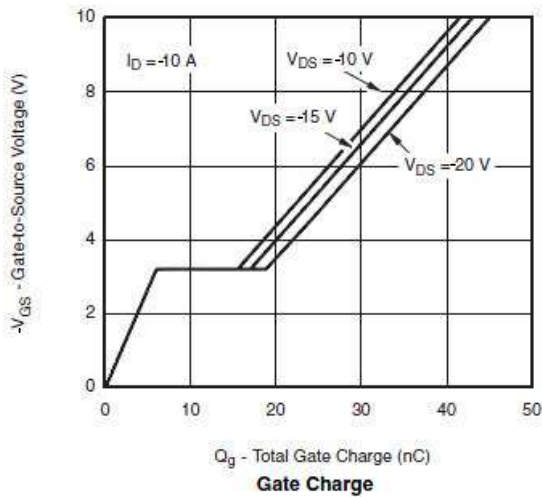
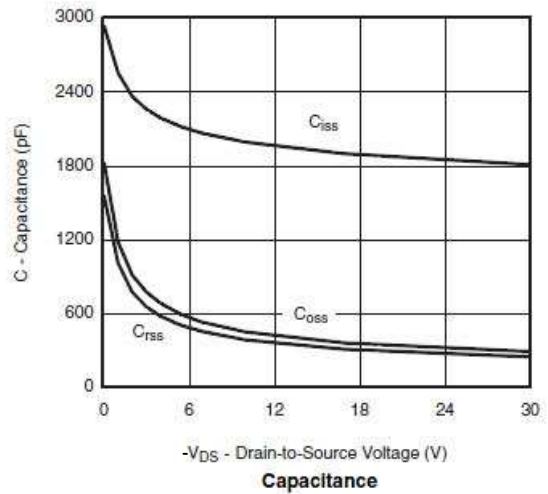
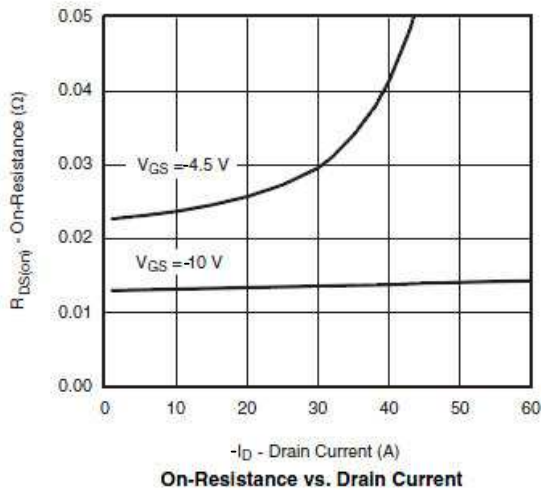
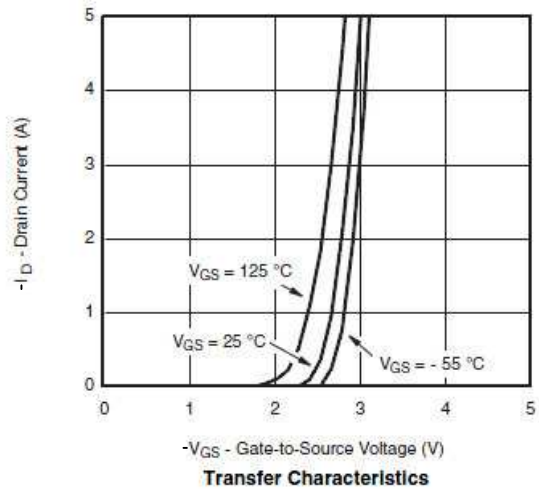
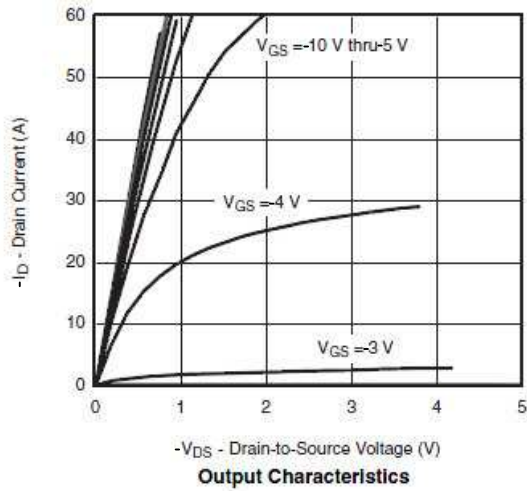
Symbol	Parameter	Typical	Unit	
V_{DSS}	Drain-Source Voltage	-30	V	
V_{GSS}	Gate -Source Voltage	± 20	V	
I_D	Continuous Drain Current($T_J=150^{\circ}\text{C}$)	$T_A=25^{\circ}\text{C}$	-9	A
		$T_A=70^{\circ}\text{C}$	-7	A
I_{DM}	Pulsed Drain Current	-40	A	
I_S	Continuous Source Current(Diode Conduction)	-2	A	
P_D	Power Dissipation	$T_A=25^{\circ}\text{C}$	2.8	W
		$T_A=70^{\circ}\text{C}$	1.8	W
T_J	Operating Junction Temperature	-55/150	$^{\circ}\text{C}$	
T_{STG}	Storage Temperature Range	-55/150	$^{\circ}\text{C}$	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	62.5	$^{\circ}\text{C/W}$	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	38	$^{\circ}\text{C/W}$	

Electrical Characteristics

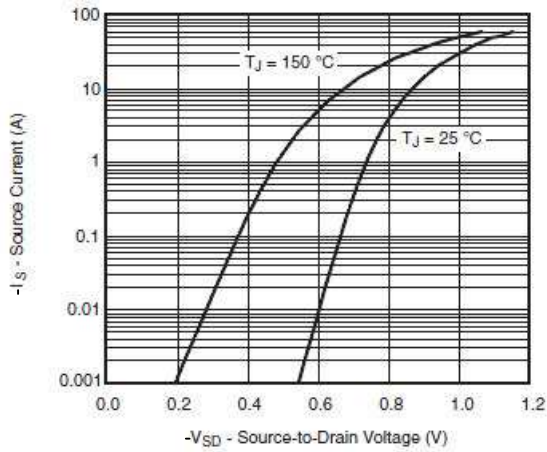
T_A=25°C Unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0		-2.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±25V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V			-1	μA
		V _{DS} =-24V, V _{GS} =0V, T _J =85°C			-30	
I _{D(on)}	On-State Drain Current	V _{DS} ≤-10V, V _{GS} =-10V	-30			A
		V _{DS} ≤-5V, V _{GS} =-4.5V	-5			
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-9A		10	18	mΩ
		V _{GS} =-4.5V, I _D =-7A		16	26	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-9A		22		S
V _{SD}	Diode Forward Voltage	I _S =-2.3A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-6A		20	30	nC
Q _{gs}	Gate-Source Charge			6		
Q _{gd}	Gate-Drain Charge			10		
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz		1600		pF
C _{oss}	Output Capacitance			350		
C _{rss}	Reverse Transfer Capacitance			300		
t _{d(on)}	Turn-On Time	V _{DD} =-15V, R _L =3Ω, I _D =-5A, V _{GEN} =-10V, R _G =1Ω		10	20	ns
t _r				12	24	
t _{d(off)}	Turn-Off Time			30	45	
t _f				10	20	

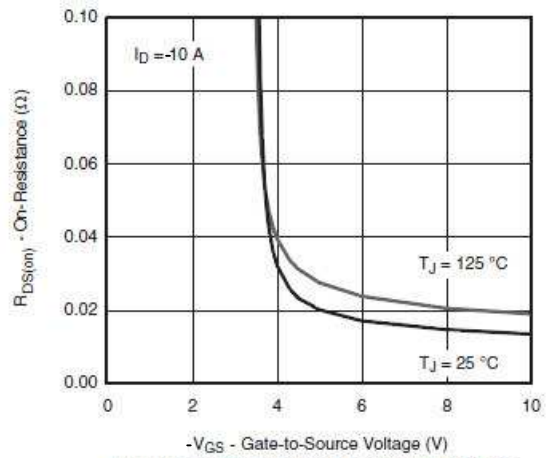
Typical Performance Characteristics



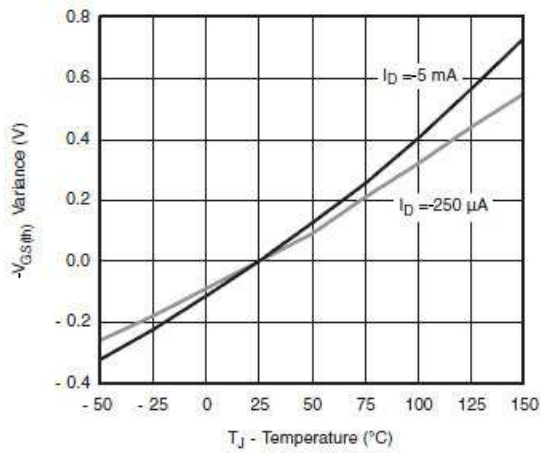
Typical Performance Characteristics(Continue)



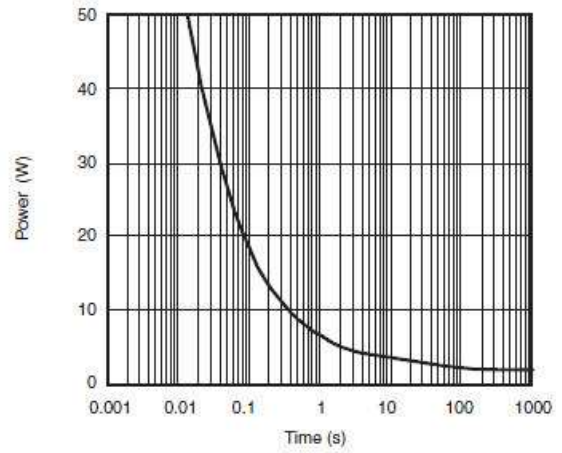
Source-Drain Diode Forward Voltage



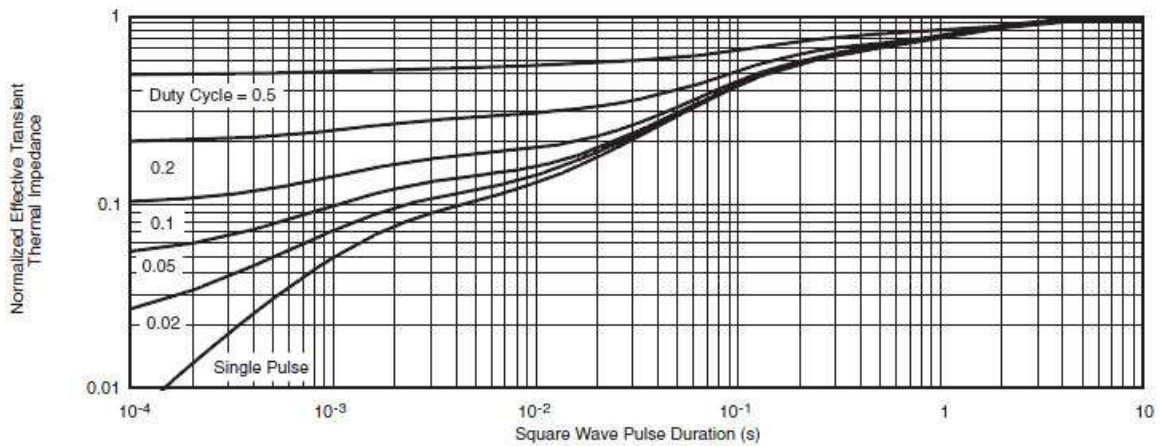
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



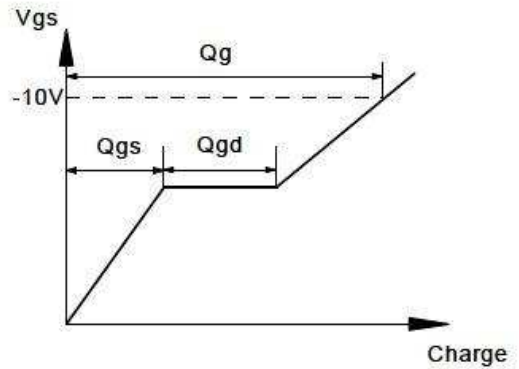
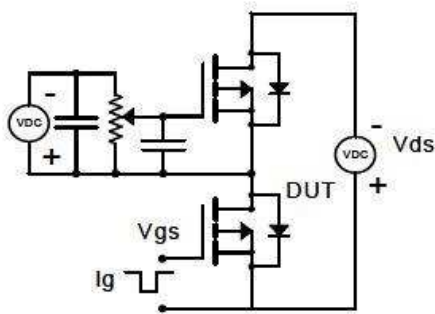
Single Pulse Power, Junction-to-Ambient



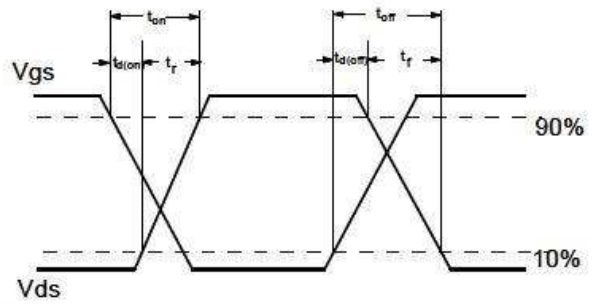
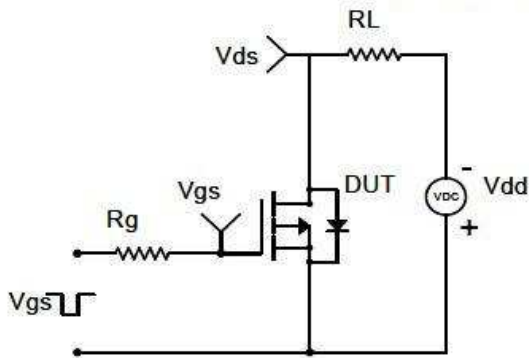
Normalized Thermal Transient Impedance, Junction-to-Foot

Typical Performance Characteristics (Continue)

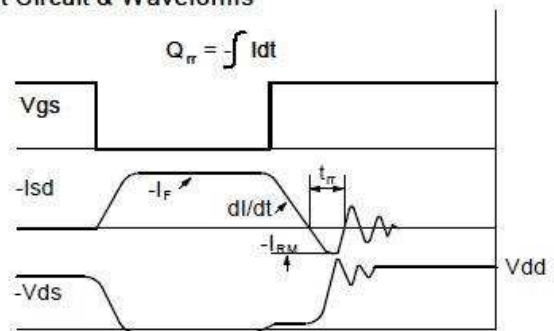
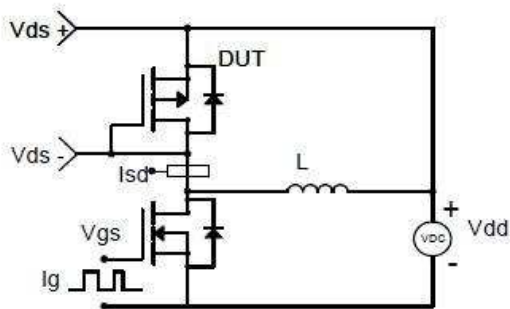
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

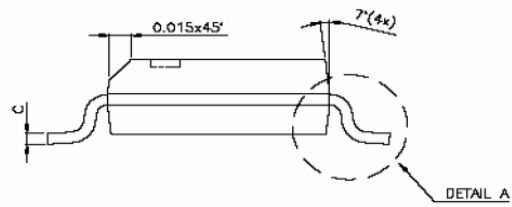
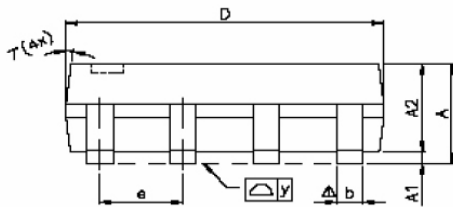
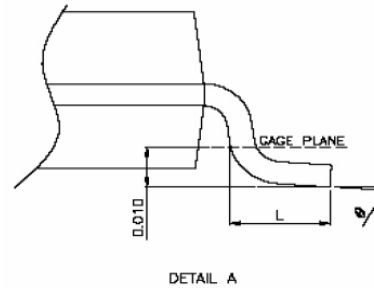
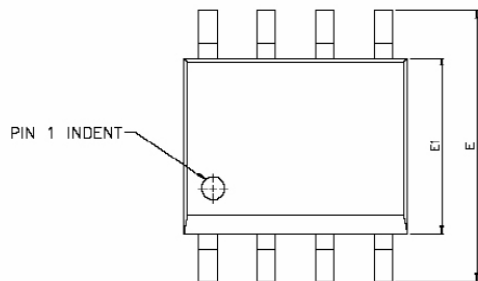


Diode Recovery Test Circuit & Waveforms



Package Dimension

SOP-8P









Dimensions						
Symbol	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	-	0.25	0.004	-	0.010
A2	-	1.45	-	-	0.057	-
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	-	1.27	-	-	0.050	-
L	0.38	0.71	1.27	0.015	0.028	0.050
Δy	-	-	0.076	-	-	0.003
θ	0°	-	8°	0°	-	8°

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CONTACT US

GS Headquarter	
	4F.,No.43-1,Lane11,Sec.6,Minquan E.Rd Neihsu District Taipei City 114, Taiwan (R.O.C)
	886-2-2657-9980
	886-2-2657-3630
	sales_twn@gs-power.com

RD Division	
	824 Bolton Drive Milpitas. CA. 95035
	1-408-457-0587