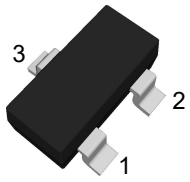
TN3407APSA

P-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= -30V,I_D= -4.6A
- $R_{DS(on)}$< 35mΩ @V_{GS}= -10V
- $R_{DS(on)}$< 49mΩ @V_{GS}= -4.5V

SOT-23



(Top View)

Pin	Description
1	Gate
2	Source
3	Drain

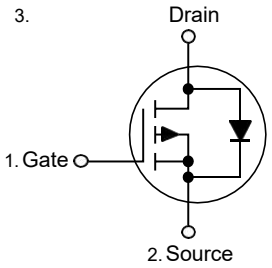
Features

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 1

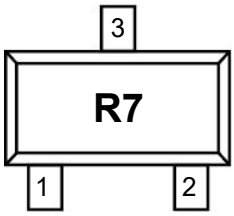
Application

- Load Switch
- PWM Application

Schematic Diagram



Marking Code



Absolute Maximum Ratings

(Ta=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	$-I_D$	4.6	A
Drain Current-Pulsed Note1	$-I_{DM}$	20	A
Maximum Power Dissipation	P_D	1.2	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient Note2	$R_{\theta JA}$	104	°C/W

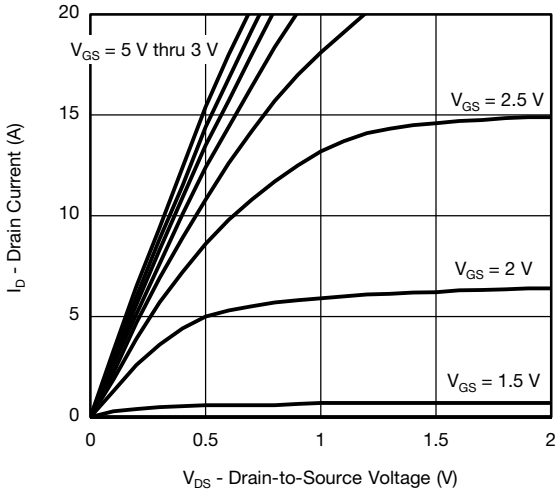
Electrical Characteristics

(Ta=25℃ unless otherwise specified)

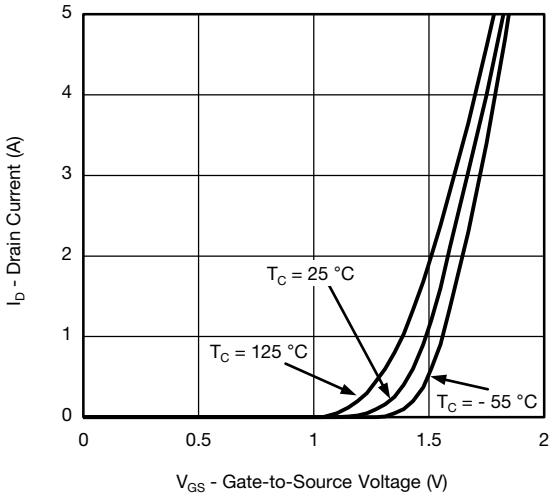
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	30	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-30V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note2	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	1	1.6	3	V
Drain-Source On-Resistance Note2	$R_{DS(on)}$	V_{GS}=-10V,I_D=-4.1A	--	25	35	mΩ
		V_{GS}=-4.5V,I_D=-3A	--	38	46	mΩ
Forward Transconductance Note2	g_{FS}	V_{DS}=-5V,I_D=-2A	--	15	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHz	--	835	--	pF
Output Capacitance	C_{oss}		--	180	--	pF
Reverse Transfer Capacitance	C_{rss}		--	155	--	pF
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f=1MHz	--	4.4	--	Ω
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-4.1A, V_{GS}=-10V	--	7	--	nC
Gate-Source Charge	Q_{gs}		--	1	--	nC
Gate-Drain Charge	Q_{gd}		--	1.4	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=15Ω V_{GS}=-10V, R_{GEN}=3Ω	--	14	--	nS
Turn-on Rise Time	t_r		--	61	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	19	--	nS
Turn-off Fall Time	t_f		--	10	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note3	$-V_{SD}$	V_{GS}=0V,I_S=-4.6A	--	--	1.2	V
Diode Forward Current Note2	$-I_S$		--	--	4.6	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

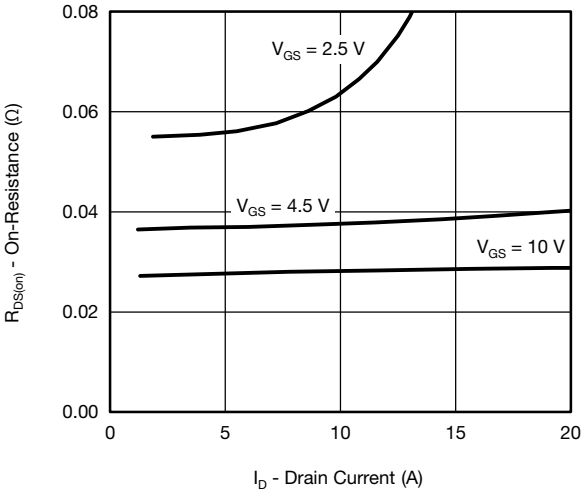
Typical Characteristic Curves



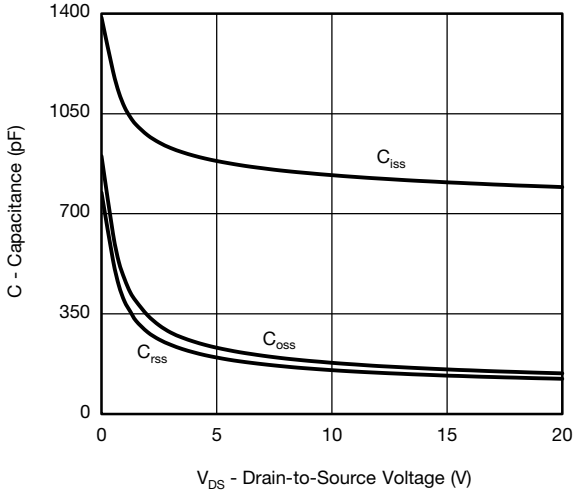
Output Characteristics



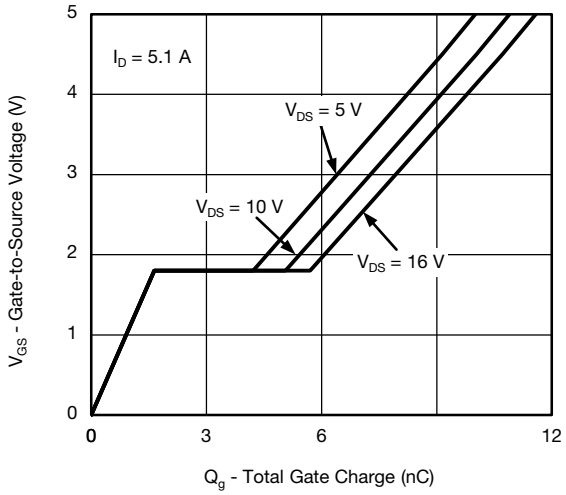
Transfer Characteristics



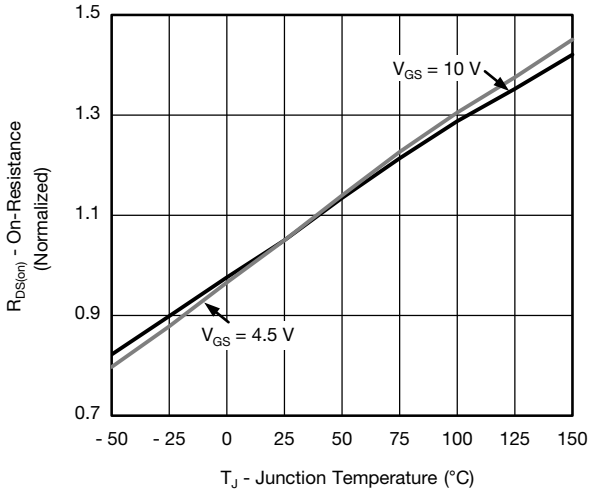
On-Resistance vs. Drain Current and Gate Voltage



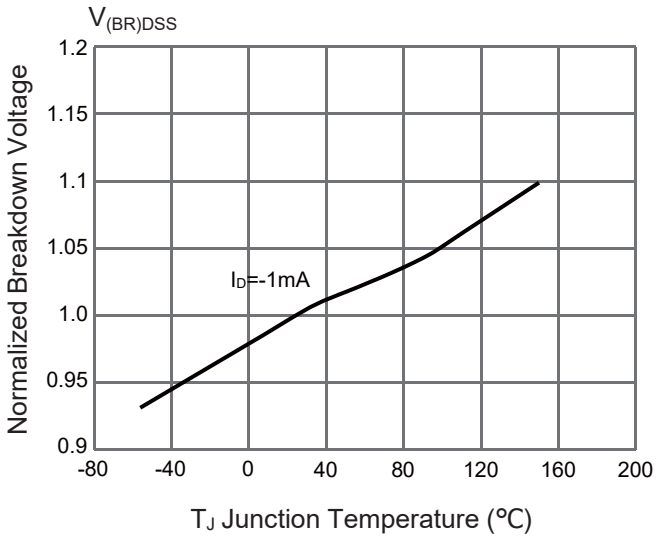
Capacitance

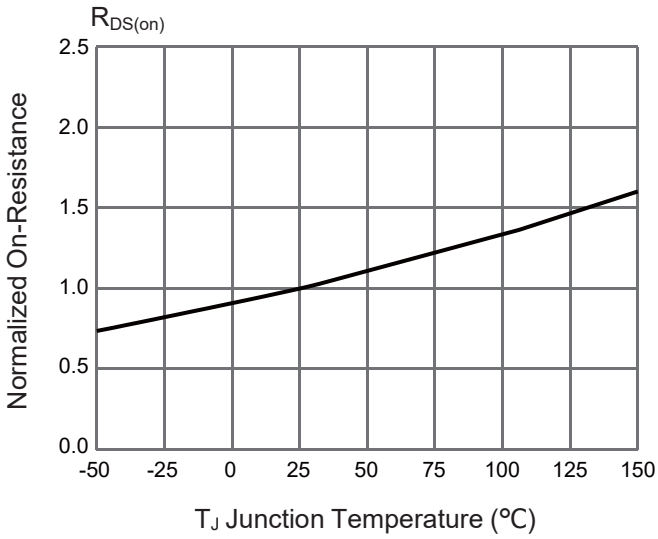


Gate Charge



On-Resistance vs. Junction Temperature

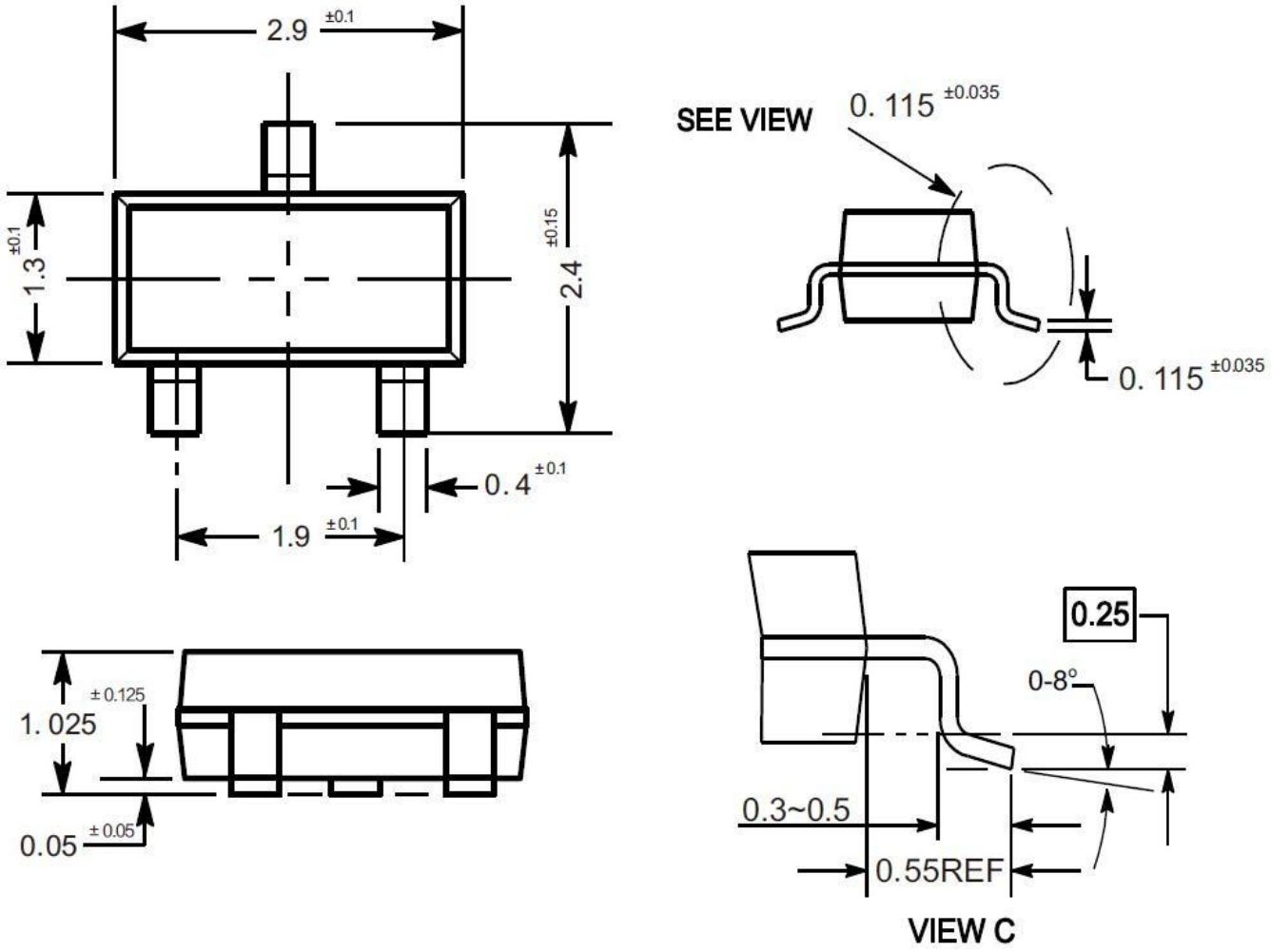




Package Outline

SOT-23

Dimensions in mm

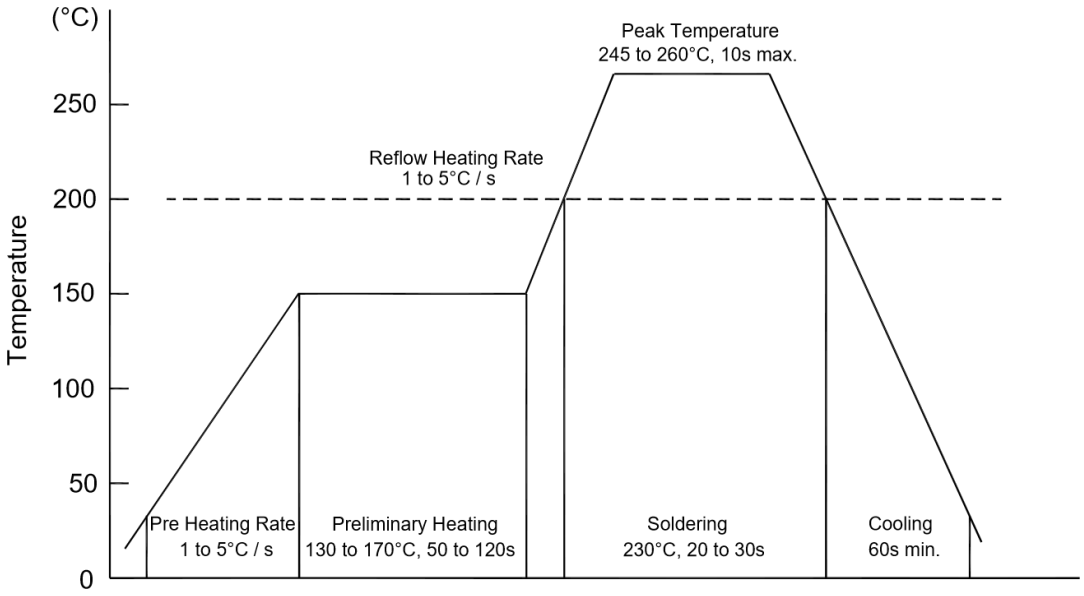


Ordering Information

Device	Package	Shipping
TN3407APSA	SOT-23	3,000PCS/Reel&7inches

Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245°C. If peak temperature is below 245°C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

- Temperature: 300°C
- Time: 3s max.
- Times: one time

◆ Storage conditions

- **Temperature**

  5 to 40°C

- **Humidity**

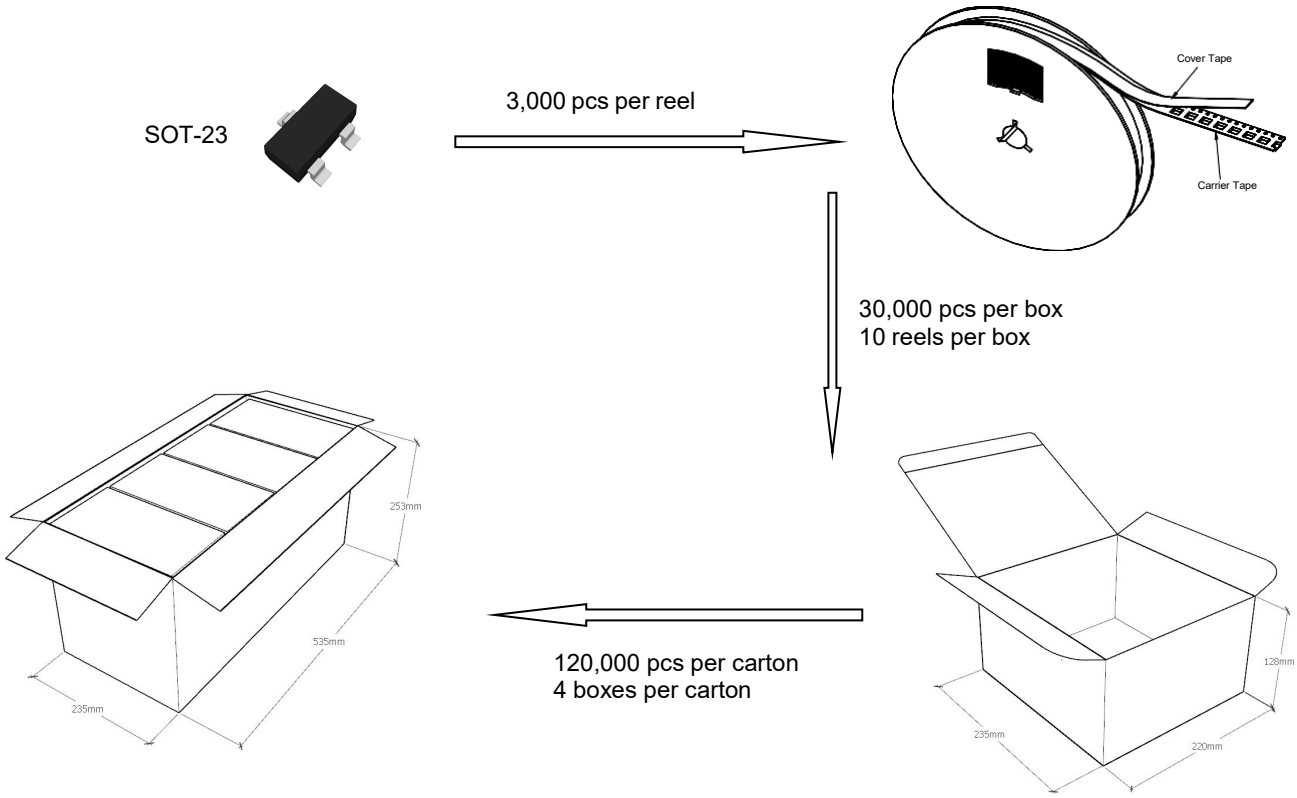
  30 to 80% RH

- **Recommended period**

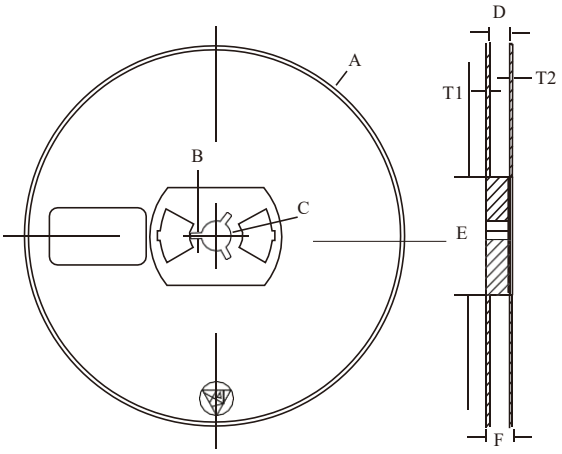
  One year after manufacturing

Package Specifications

- The method of packaging

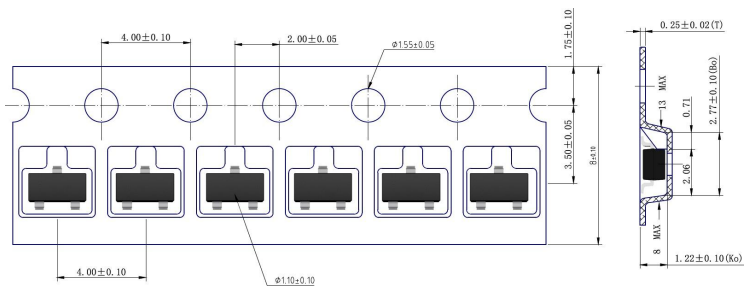


◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	Ø 177.8±1
B	2.7±0.2
C	Ø 13.5±0.2
E	Ø 54.5±0.2
F	12.3±0.3
D	9.6+2/-0.3
T1	1.0±0.2
T2	1.2±0.2

Reel (7")



Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

