

Features

- Low On-Resistance
- Fast Switching Speed
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-Channel MOSFET

Maximum Ratings

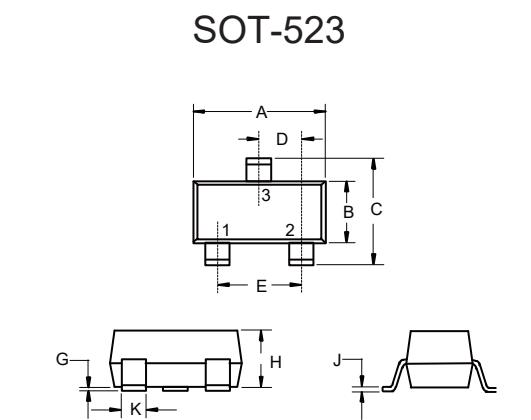
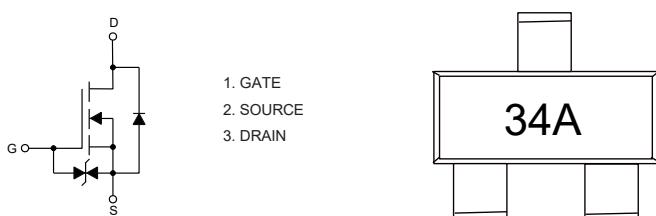
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 695°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	20	V
Gate -Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D	0.75	A
Pulsed Drain Current ^(Note 2)	I_{DM}	3.0	A
Power Dissipation ^(Note 3)	P_D	0.18	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

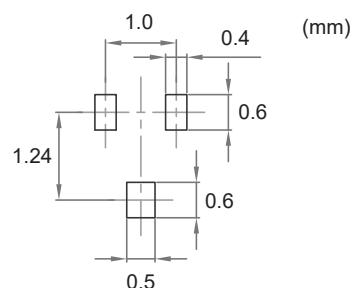
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. This test is performed with no heat sink at $T_a=25^\circ\text{C}$.

Internal Structure and Marking Code



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-Threshold Voltage ^(Note4)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.1	V
Drain-Source On-Resistance ^(Note4)	R _{DS(on)}	V _{GS} =4.5V, I _D =500mA			300	mΩ
		V _{GS} =2.5V, I _D =400mA			400	
		V _{GS} =1.8V, I _D =200mA			700	
Diode Forward Voltage ^(Note4)	V _{SD}	V _{GS} =0V, I _S =500mA			1.2	V
Dynamic Characteristics^(Note5,6)						
Input Capacitance	C _{iss}	V _{DS} =16V, V _{GS} =0V, f=1MHz		33		pF
Output Capacitance	C _{oss}			20		
Reverse Transfer Capacitance	C _{rss}			10		
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =1A		800		pC
Gate-Source Charge	Q _{gs}			290		
Gate-Drain Charge	Q _{gd}			160		
Reverse Recovery Charge	Q _{rr}	I _F =0.5A, di/dt=20A/us		400		ns
Reverse Recovery Time	t _{rr}			14.4		
Turn-On Delay Time	t _{d(on)}			4		
Turn-On Rise Time	t _r	V _{GS} =4.5V, V _{DS} =10V, I _{DS} =0.5A, R _G =10Ω		18		ns
Turn-Off Delay Time	t _{d(off)}			11.6		
Turn-Off Fall Time	t _f			24		

Note 4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.

5. Switching characteristics are independent of operating junction temperature.

6. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

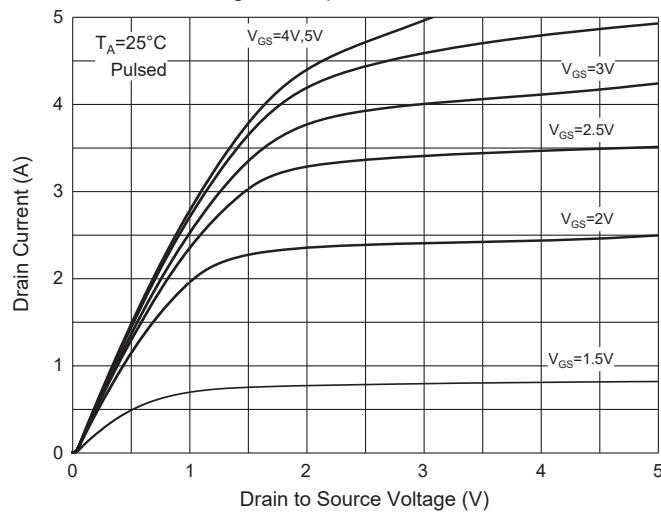


Fig. 2 - Transfer Characteristics

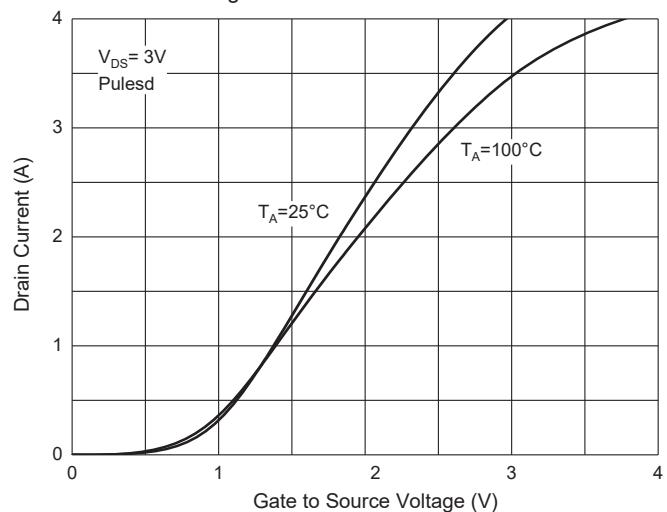


Fig. 3 - $R_{DS(ON)} - I_D$

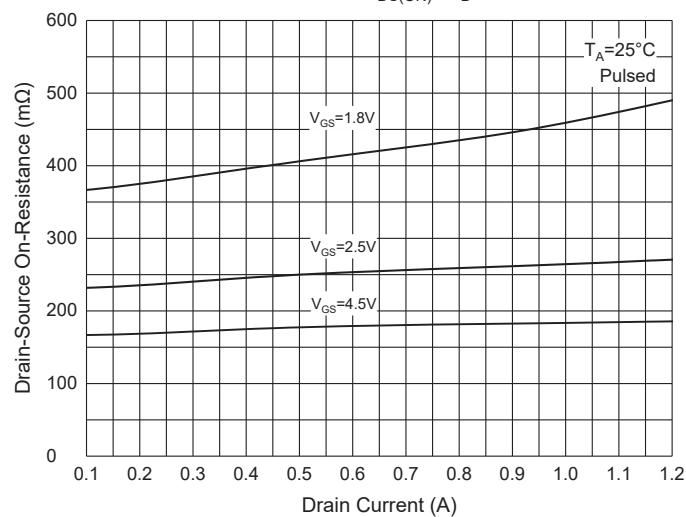


Fig. 4 - Threshold Voltage

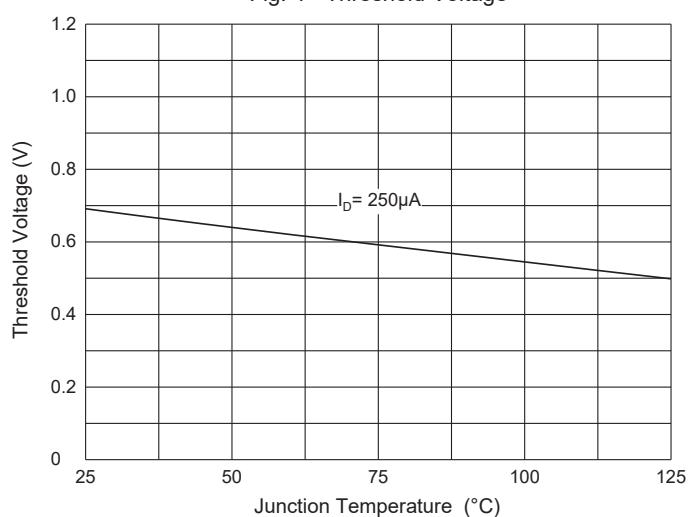


Fig. 5 - Gate Charge

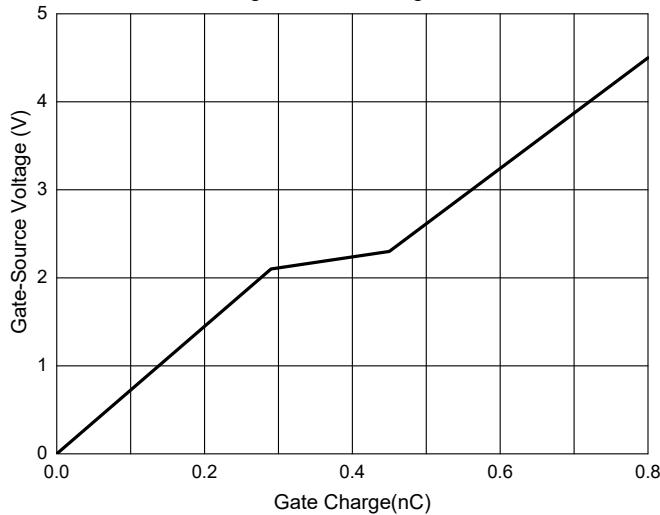


Fig. 6 - Capacitance Characteristics

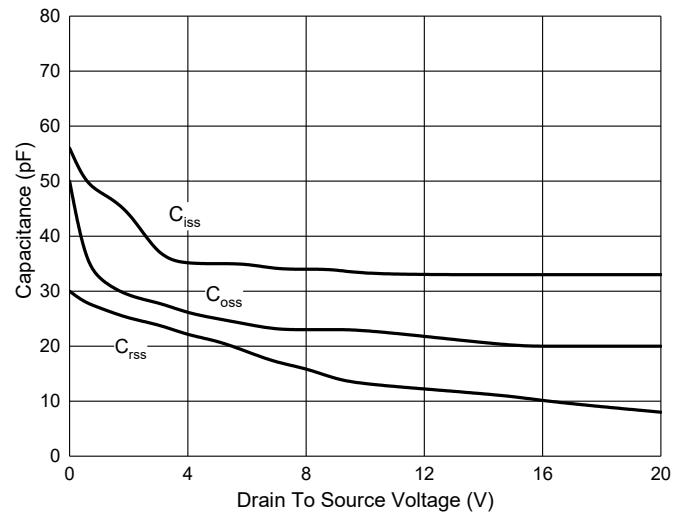


Fig. 7 - Normalized On Resistance Characteristics

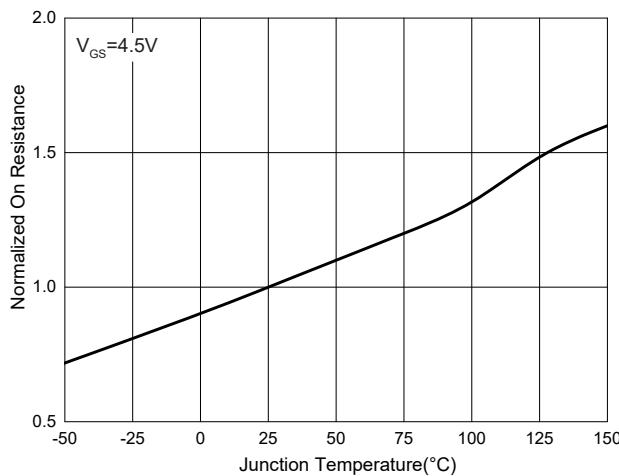


Fig. 8 - I_s — V_{SD}

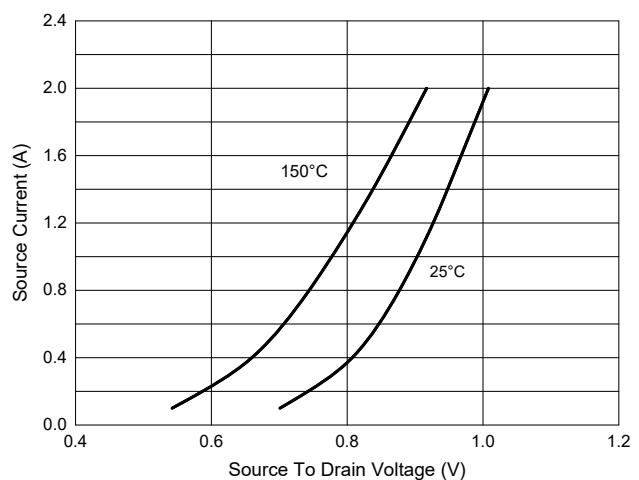


Fig. 9 - $R_{DS(ON)}$ — V_{GS}

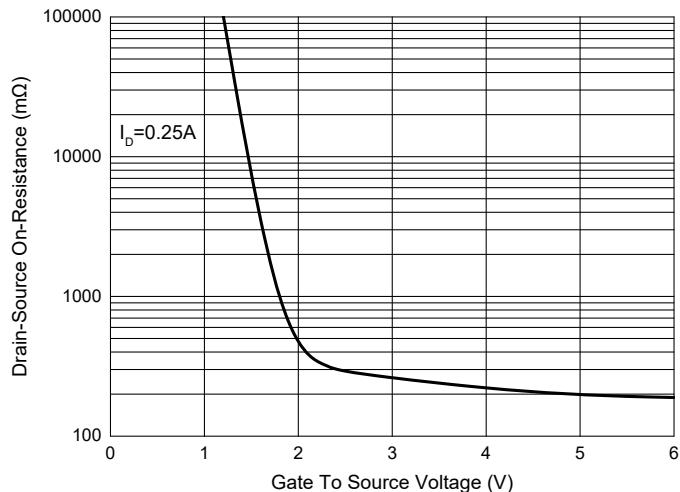
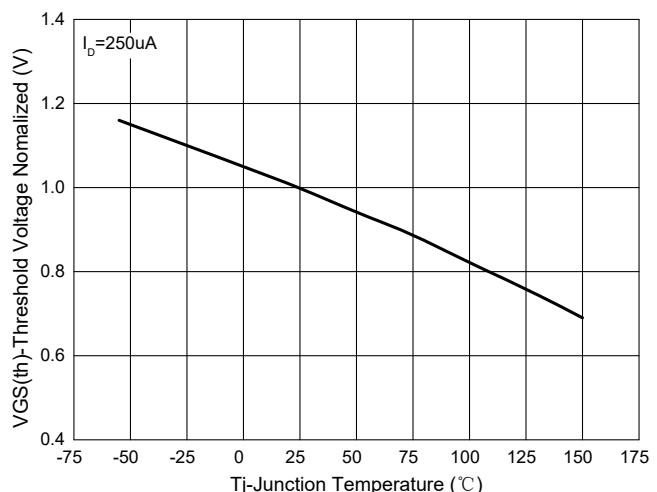


Fig. 10 - Normalized Threshold voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel
Part Number-13P	Tape&Reel: 10Kpcs/Reel

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