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

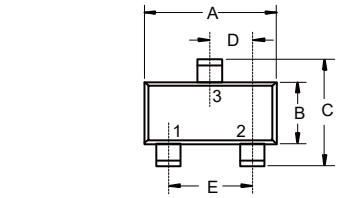
Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	20	V
Gate -Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	0.75	A
Pulsed Drain Current(Note 2)	I_{DM}	3.0	A
Power Dissipation(Note 3)	P_D	0.18	W

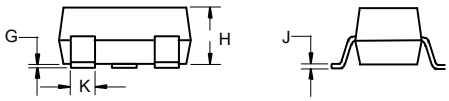
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.

3. This test is performed with no heat sink at Ta=25℃.

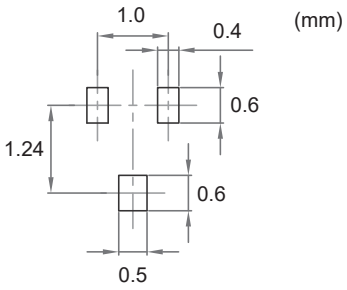
SOT-523



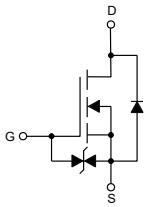


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

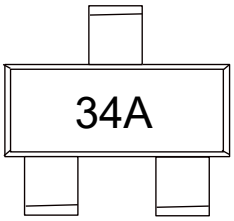
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



ELECTRICAL CHARACTERISTICS (Ta=25℃ 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		
Reverse Recovery Time	t_{rr}			14.4		ns
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, I_{DS}=0.5A,R_G=10Ω		4		
Turn-On Rise Time	t_r			18		
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

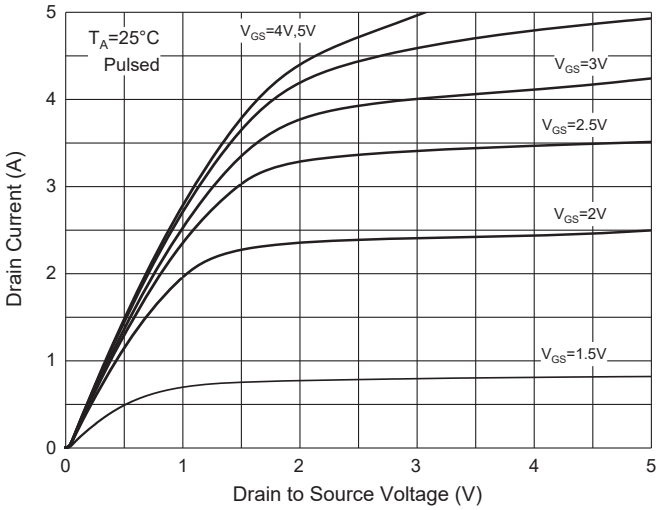


Fig. 2 - Transfer Characteristics

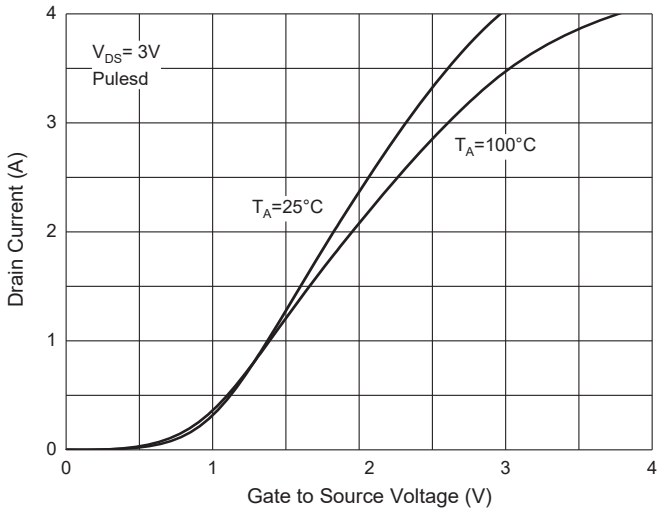


Fig. 3 - $R_{DS(ON)}$—I_D

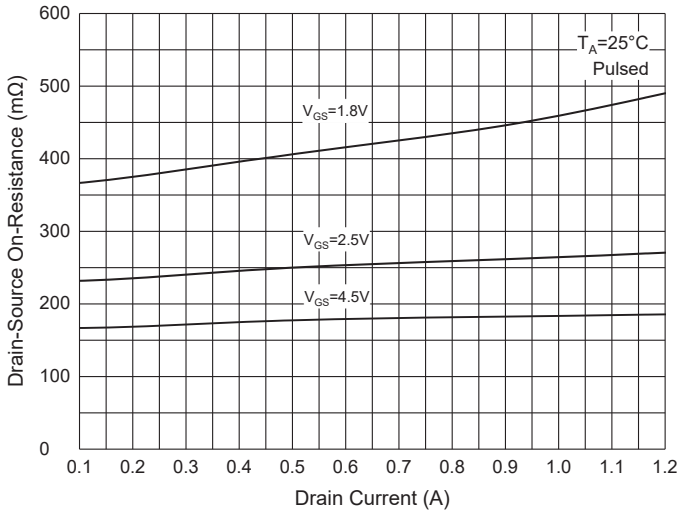


Fig. 4 - Threshold Voltage

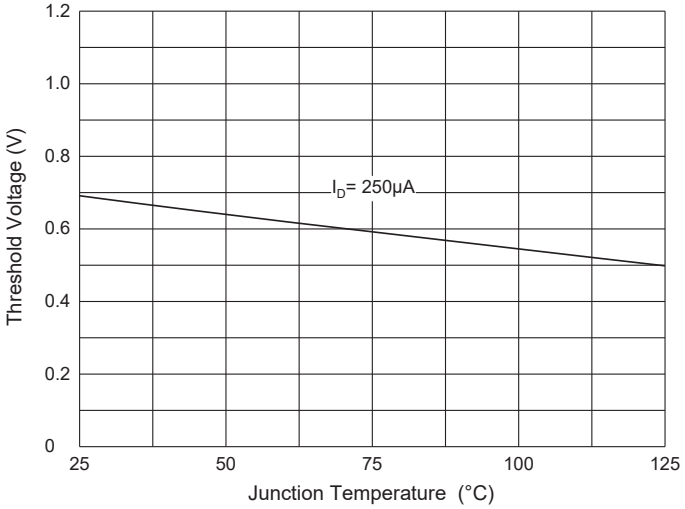


Fig. 5 - Gate Charge

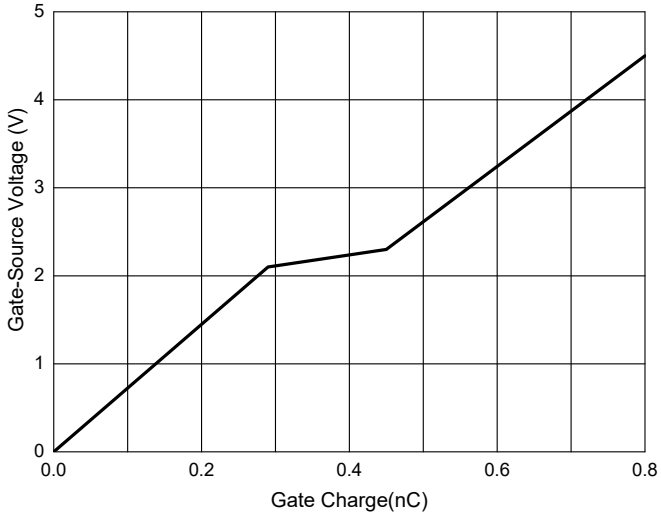


Fig. 6 - Capacitance Characteristics

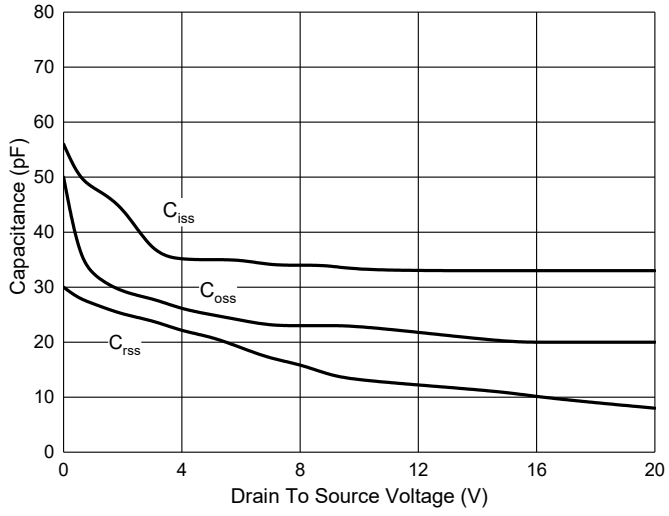


Fig. 7 - Normalized On Resistance Characteristics

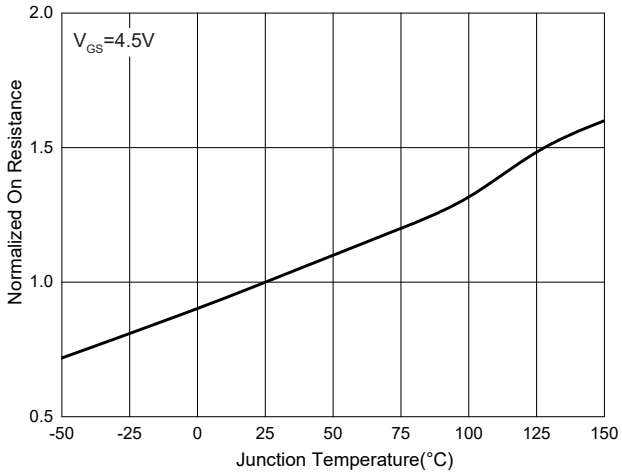


Fig. 8 - I_S—V_{SD}

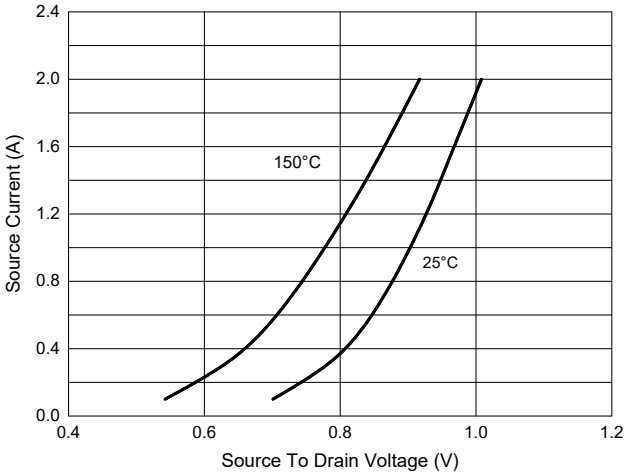


Fig. 9 - $R_{DS(ON)}$—V_{GS}

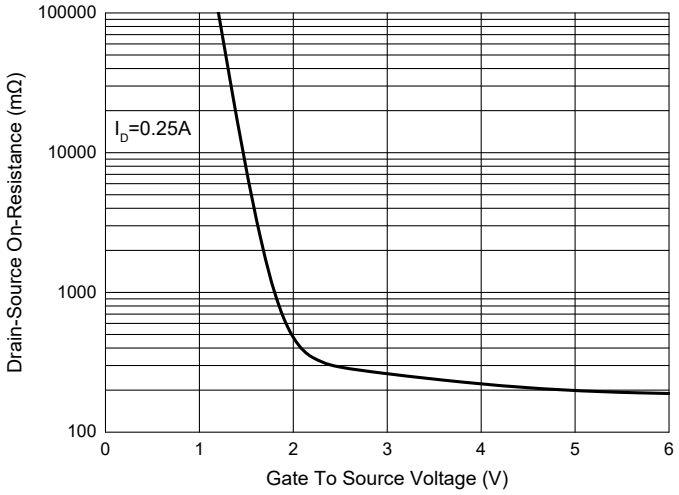
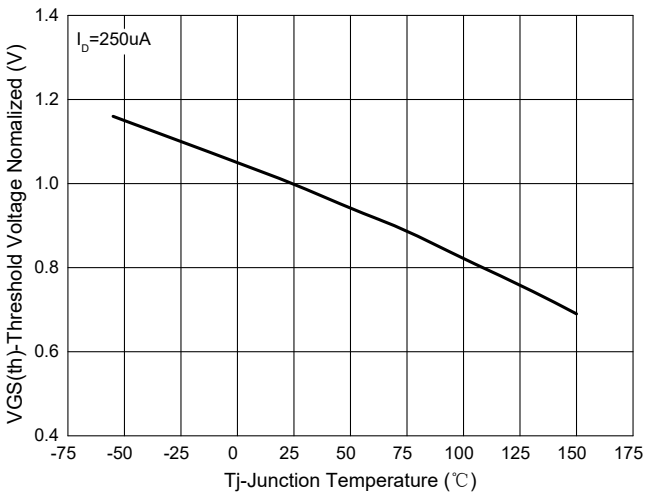


Fig. 10 - Nomalized Threshold voltage



Ordering Information

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