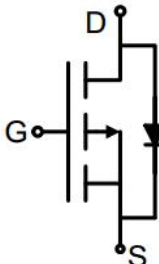
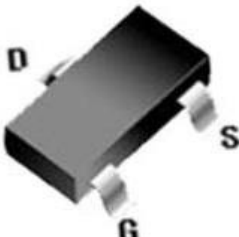


P-Channel Enhancement Mode Power MOSFET

<p>Description</p> <p>The GT950P06L uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.</p> <p>General Features</p> <ul style="list-style-type: none"> ● V_{DS} -60V ● I_D (at $V_{GS} = -10V$) -5A ● $R_{DS(ON)}$ (at $V_{GS} = -10V$) < 120mΩ ● $R_{DS(ON)}$ (at $V_{GS} = -4.5V$) < 145mΩ ● 100% Avalanche Tested ● RoHS Compliant <p>Application</p> <ul style="list-style-type: none"> ● Power switch ● DC/DC converters 	 <p>Schematic diagram</p>  <p>SOT-23-3</p>
--	--

Ordering Information

Device	Package	Marking	Packaging
GT950P06L	SOT-23-3	GT950P06	3000pcs/Reel

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Continuous Drain Current	I_D	$T_C = 25^\circ\text{C}$	-5
		$T_C = 100^\circ\text{C}$	-3.2
Pulsed Drain Current (note1)	I_{DM}	-20	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	1.5	W
Single pulse avalanche energy (note2)	E_{AS}	7	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient, $t \leq 10s$	R_{thJA}	83	$^\circ\text{C/W}$

Specifications $T_J = 25^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60V, V_{GS} = 0V$	--	--	-1	μA
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 20V$	--	--	± 100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.1	-1.4	-2.4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -3A$	--	95	120	m Ω
		$V_{GS} = -4.5V, I_D = -2A$	--	115	145	
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -3A$	--	6	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = -30V,$ $f = 1.0MHz$	--	300	--	pF
Output Capacitance	C_{oss}		--	50	--	
Reverse Transfer Capacitance	C_{rss}		--	1.5	--	
Total Gate Charge	Q_g	$V_{DD} = -30V,$ $I_D = -3A,$ $V_{GS} = -10V$	--	5	--	nC
Gate-Source Charge	Q_{gs}		--	1	--	
Gate-Drain Charge	Q_{gd}		--	0.7	--	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -30V,$ $I_D = -3A,$ $R_G = 5\Omega$	--	7	--	ns
Turn-on Rise Time	t_r		--	8	--	
Turn-off Delay Time	$t_{d(off)}$		--	16	--	
Turn-off Fall Time	t_f		--	4	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	$T_C = 25^\circ\text{C}$	--	--	-5	A
Body Diode Voltage	V_{SD}	$T_J = 25^\circ\text{C}, I_{SD} = -3A, V_{GS} = 0V$	--	--	-1.2	V
Reverse Recovery Charge	Q_{rr}	$I_F = -3A, V_{GS} = 0V$ $di/dt = -100A/\mu s$	--	31	--	nC
Reverse Recovery Time	T_{rr}		--	02	--	ns

Notes

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

2. EAS condition : $T_J = 25^\circ\text{C}, V_{DD} = -50V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$

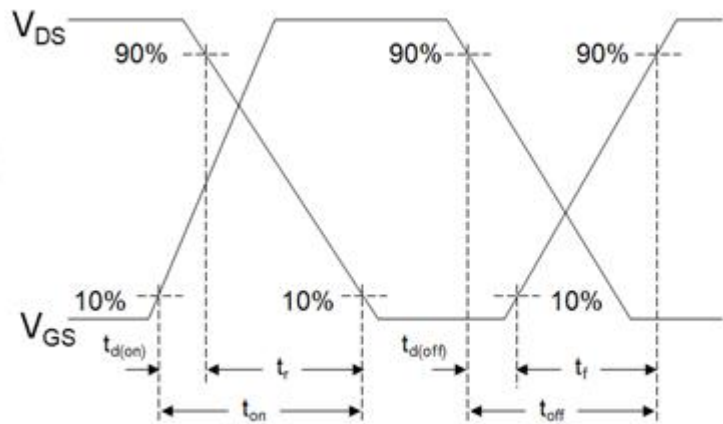
The table shows the minimum avalanche energy, which is 20mJ when the device is tested until failure

3. Identical low side and high side switch with identical R_G

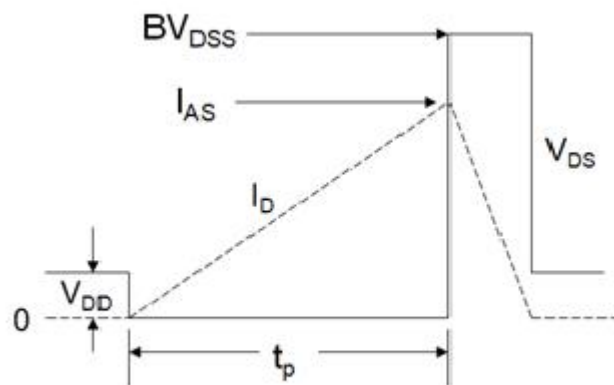
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

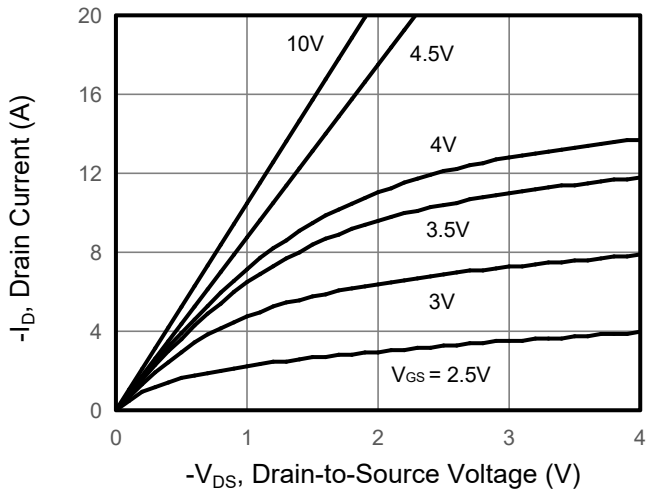


Figure 2. Transfer Characteristics

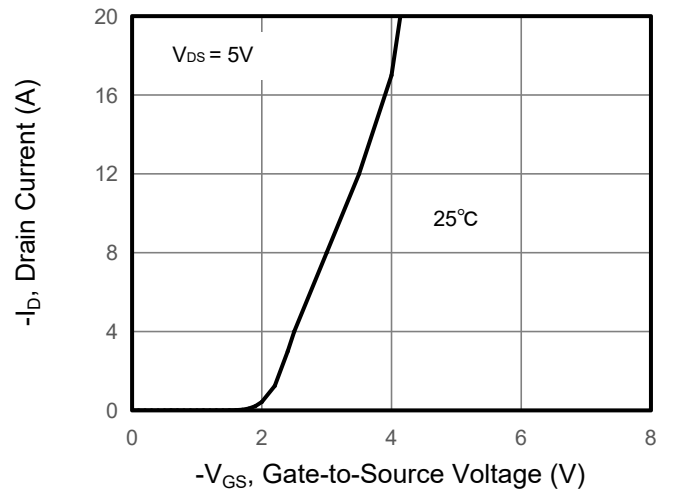


Figure 3. Drain Source On Resistance

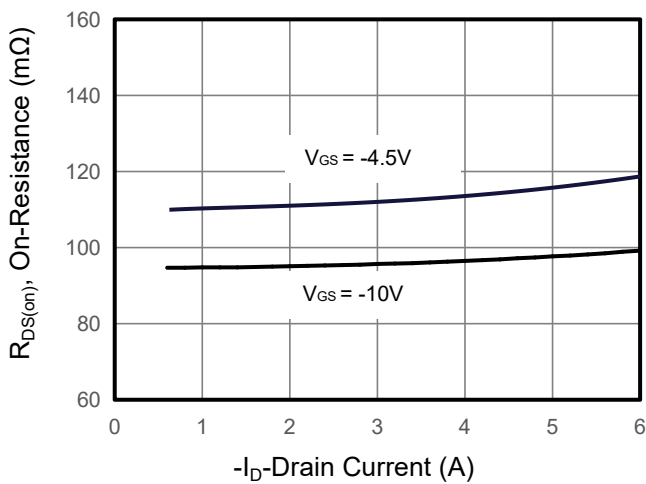


Figure 4. Gate Charge

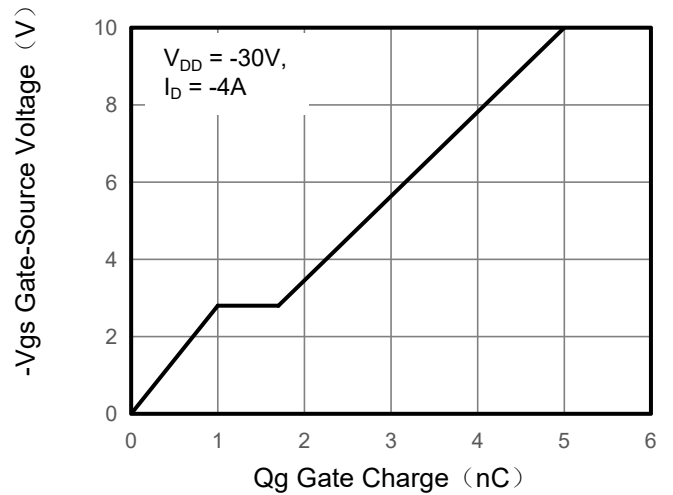


Figure 5. Capacitance

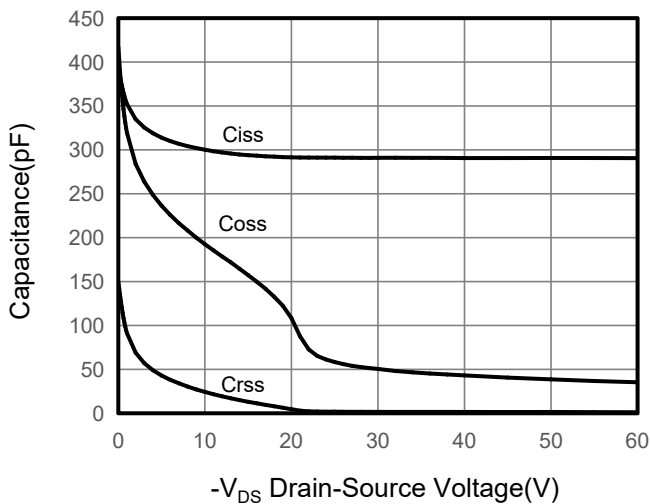
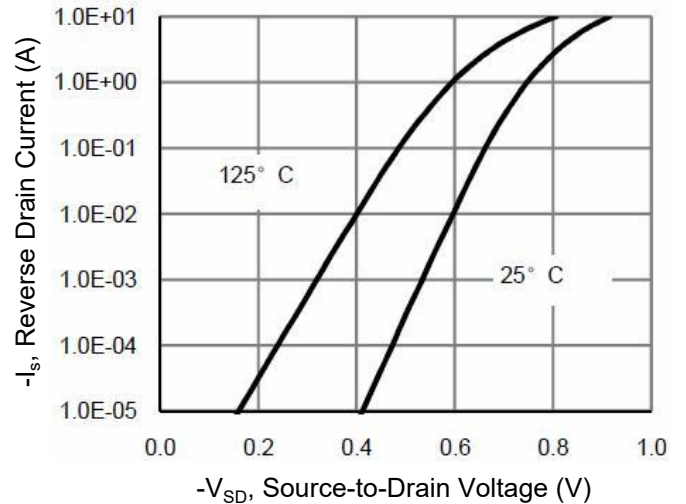


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

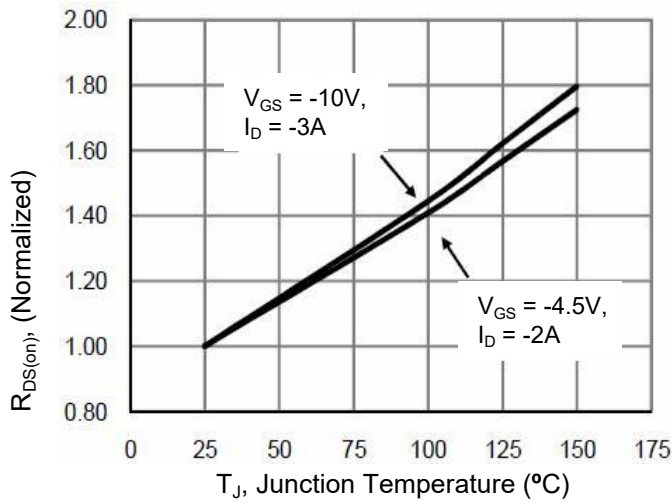


Figure 8. Safe Operation Area

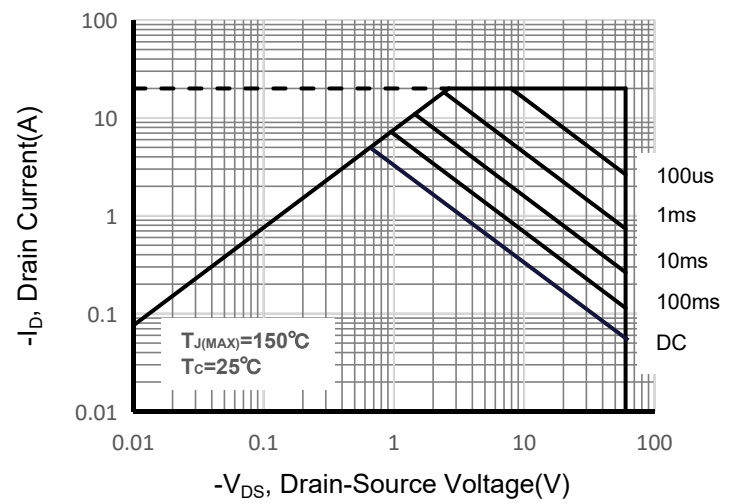


Figure 9. Maximum Continuous Drain Current vs Case Temperature

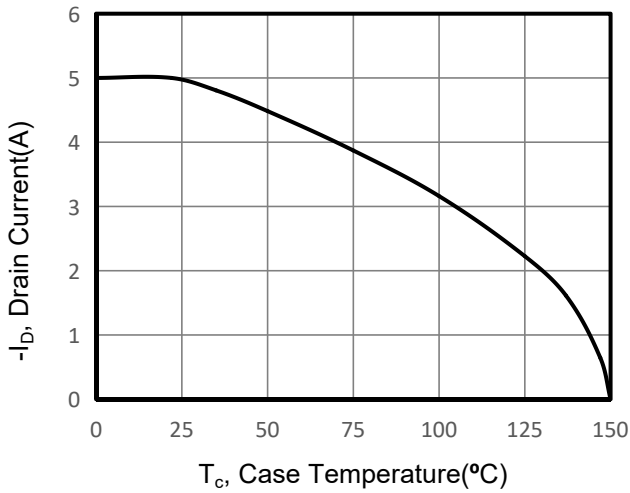
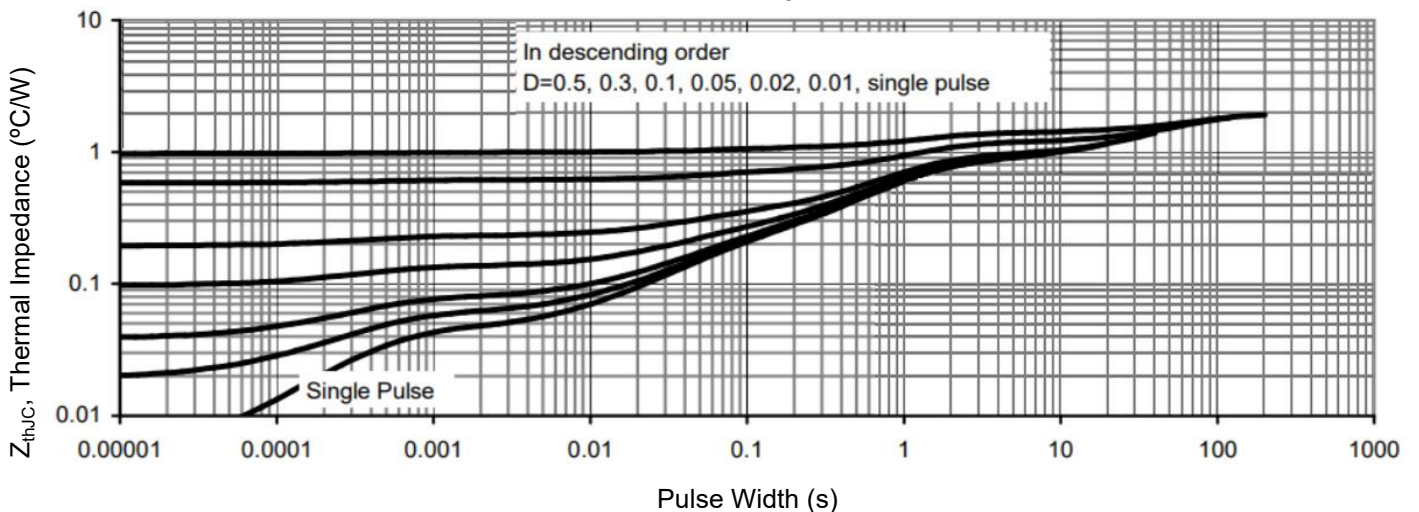


Figure 10. Normalized Maximum Transient Thermal Impedance



SOT-23-3 Package Information

