

■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V_{DSS}	-55	V	
Gate-Source Voltage		V_{GSS}	± 20	V	
Drain Current	Continuous	I_D	$V_{GS}=-10V, T_C=25^\circ C$	-17	A
			$V_{GS}=10V, T_C=100^\circ C$	-12	A
	Pulsed (Note 2)		I_{DM}	-68	A
Avalanche Current (Note 2)		I_{AR}	-10	A	
Avalanche Energy	Single Pulse (Note 3)	E_{AS}	180	mJ	
	Repetitive (Note 2)	E_{AR}	5.6	mJ	
Peak Diode Recovery dv/dt (Note 4)		dv/dt	-6.7	V/ns	
Power Dissipation ($T_C=25^\circ C$)		P_D	56	W	
Linear Derating Factor			0.37	W/ $^\circ C$	
Junction Temperature		T_J	-55~+150	$^\circ C$	
Storage Temperature Range		T_{STG}	-55~+150	$^\circ C$	

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Starting $T_J=25^\circ C, L=3.6mH, R_G=25\Omega, I_{AS}=-10A$
3. $I_{SD}\leq -10A, di/dt\leq -290A/\mu s, V_{DD}\leq BV_{DSS}, T_J\leq 150^\circ C$
4. Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$

■ THERMAL RESISTANCE

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62	$^\circ C/W$
Junction to Case	θ_{JC}	2.7	$^\circ C/W$

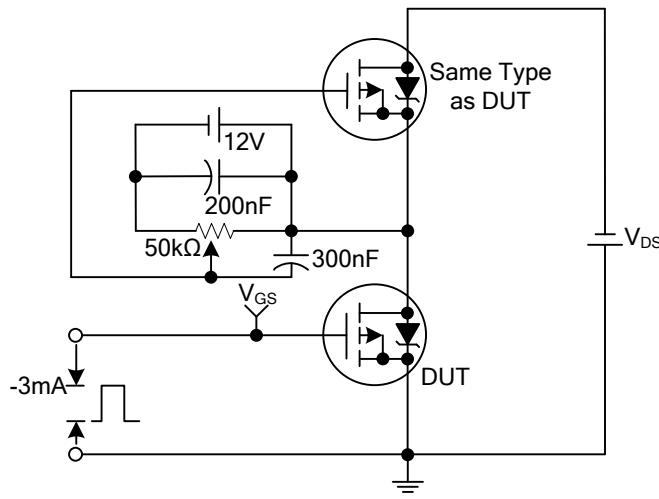
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-55			V
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =-1mA		-0.05		V/°C
Drain -Source Leakage Current	I _{DSS}	V _{DS} =-55V, V _{GS} =0V			-25	μA
		V _{DS} =-44V, V _{GS} =0V, T _J =150°C			-250	μA
Gate-Source Leakage Current	Forward	I _{GSS}				
	Reverse					
		V _{GS} =20V, V _{DS} =0V			100	nA
		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS						
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-10A (Note 2)			0.10	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-2.0		-4.0	V
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-25V, f=1.0MHz		620		pF
Output Capacitance	C _{OSS}			280		pF
Reverse Transfer Capacitance	C _{RSS}			140		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	I _D =-1.3A, V _{DS} =-50V, V _{GS} =-10V (Note 2)		35.6	40	nC
Gate to Source Charge	Q _{GS}			5.6	7.9	nC
Gate to Drain ("Miller") Charge	Q _{GD}			8.7	16	nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =-30V, I _D =-0.5A, R _G =25Ω R _D =2.6Ω (Note 2)		30		ns
Rise Time	t _R			60		ns
Turn-OFF Delay Time	t _{D(OFF)}			360		ns
Fall Time	t _F			115		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body Diode Continuous Source Current	I _S				-17	A
Maximum Body-Diode Pulsed Current (Note 1)	I _{SM}				-68	A
Drain-Source Diode Forward Voltage	V _{SD}	T _J =25°C, I _S =-10A, V _{GS} =0V (Note 2)			-1.3	V
Body Diode Reverse Recovery Time	t _{RR}	T _J =25°C, I _F =-10A, di/dt=-100A/μs		54	82	ns
Body Diode Reverse Recovery Charge	Q _{RR}	(Note 2)		110	160	nC

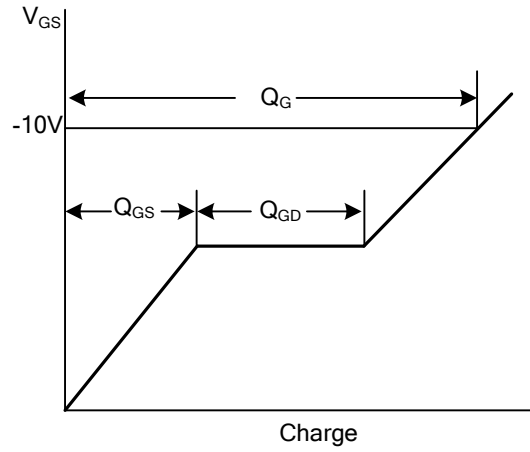
Notes: 1. Starting T_J=25°C, L=3.6mH, R_G=25Ω, I_{AS}=-10A

2. Pulse width≤300μs; duty cycle≤2%

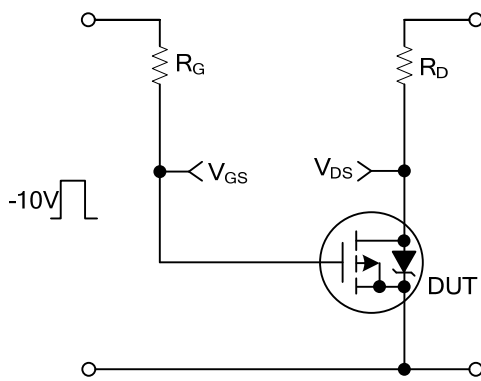
■ TEST CIRCUITS AND WAVEFORMS



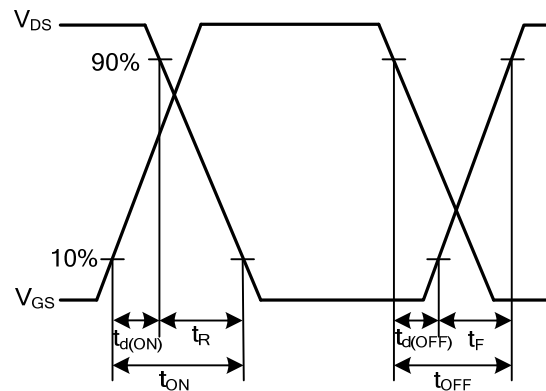
Gate Charge Test Circuit



Gate Charge Waveforms

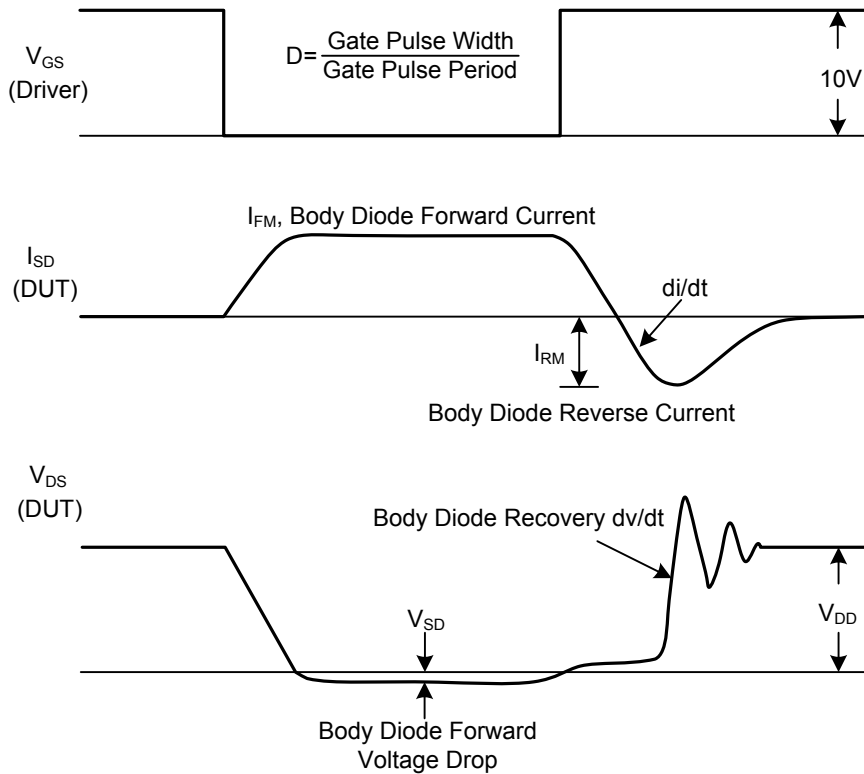
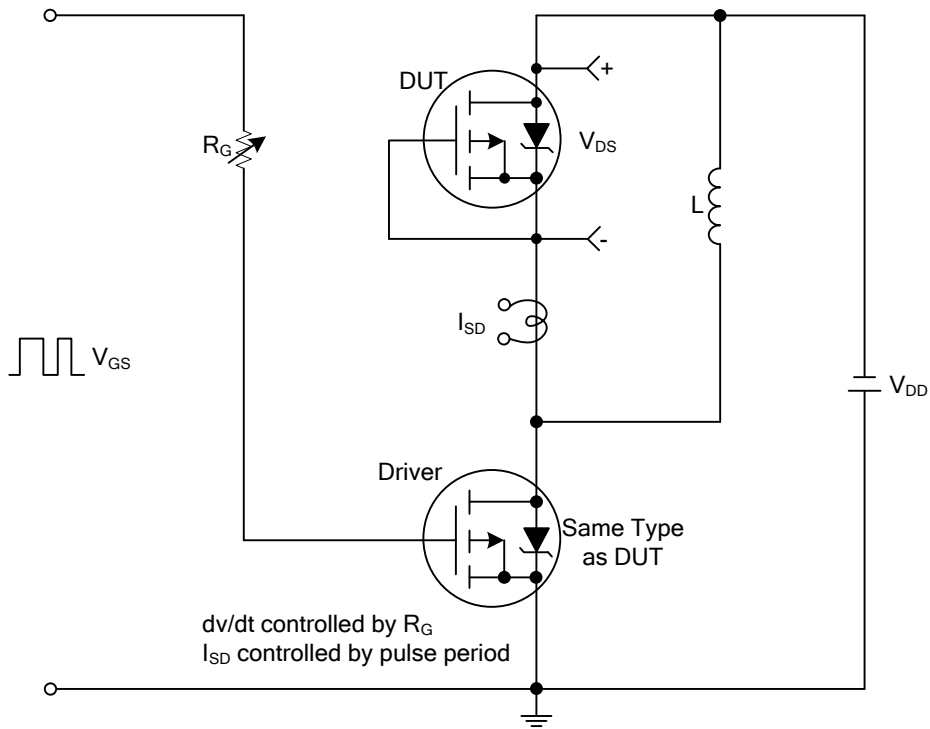


Resistive Switching Test Circuit



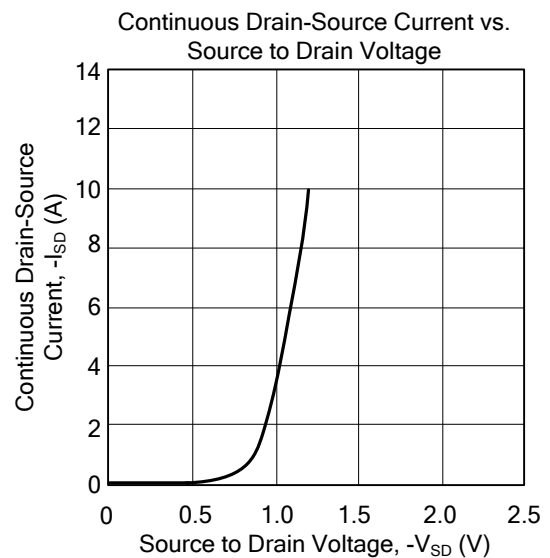
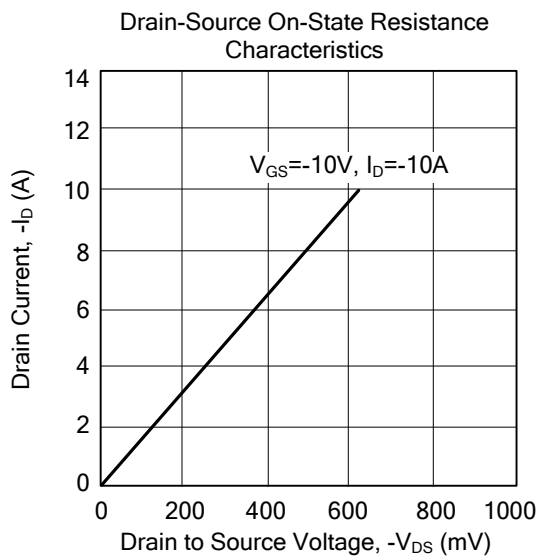
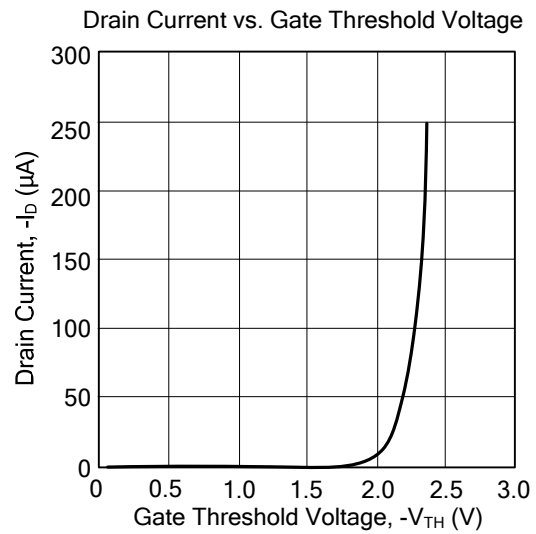
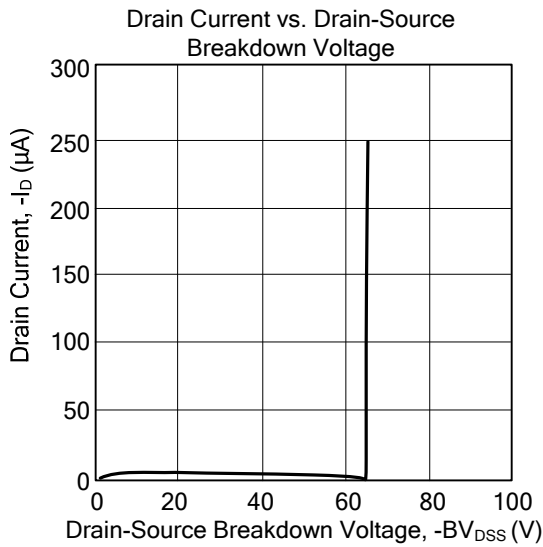
Resistive Switching Waveforms

■ TEST CIRCUITS AND WAVEFORMS(Cont.)



Peak Diode Recovery dv/dt Test Circuit and Waveforms

TYPICAL CHARACTERISTICS



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