



UF9Z34

POWER MOSFET

-17A, -55V P-CHANNEL POWER MOSFET

DESCRIPTION

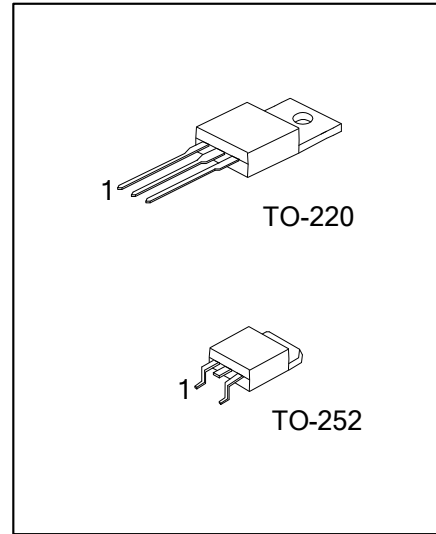
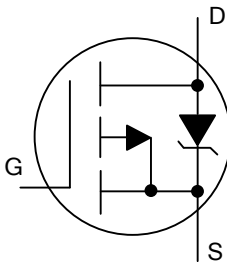
The UTC **UF9Z34** is a P-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance.

The UTC **UF9Z34** is suitable for all commercial-industrial applications, etc.

FEATURES

- * $R_{DS(ON)} \leq 0.1 \Omega @ V_{GS} = -10V, I_D = -10A$
- * High Switching Speed
- * Dynamic dv/dt Rating

SYMBOL



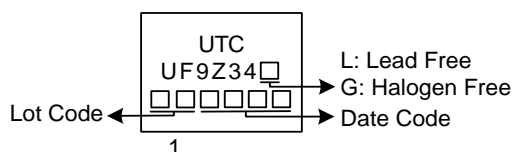
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF9Z34L-TA3-T	UF9Z34G-TA3-T	TO-220	G	D	S	Tube
UF9Z34L-TN3-R	UF9Z34G-TN3-R	TO-252	G	D	S	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UF9Z34G-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TN3: TO-252</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

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°C	-17	A
			V _{GS} =10V, T _C =100°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°C)	TO-220	P _D	56	W	
	TO-252		38	W	
Junction Temperature		T _J	-55 ~ +150	°C	
Storage Temperature Range		T _{STG}	-55 ~ +150	°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.

- Starting T_J=25°C, L=3.6mH, R_G=25Ω, I_{AS}=-10A
- I_{SD}≤-10A, di/dt≤-290A/μs, V_{DD}≤BV_{DSS}, T_J≤150°C
- Pulse width≤300μs; duty cycle≤2%

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ _{JA}	62	°C/W
	TO-252		125	°C/W
Junction to Case	TO-220	θ _{JC}	2.2	°C/W
	TO-252		3.2	°C/W

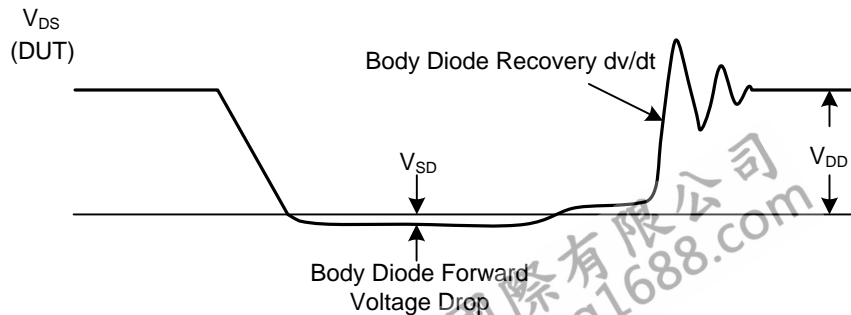
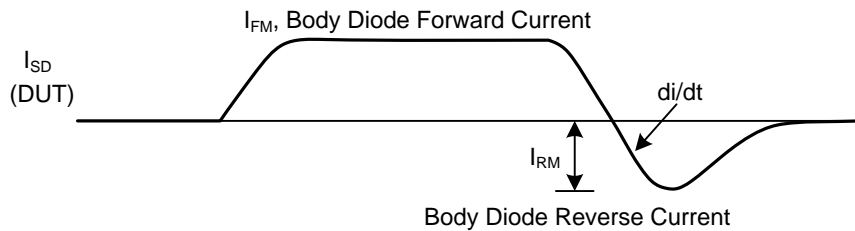
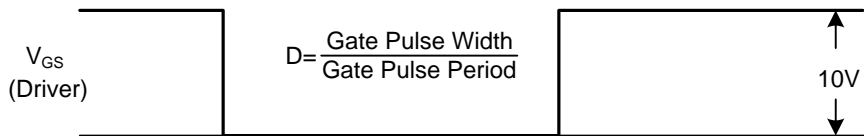
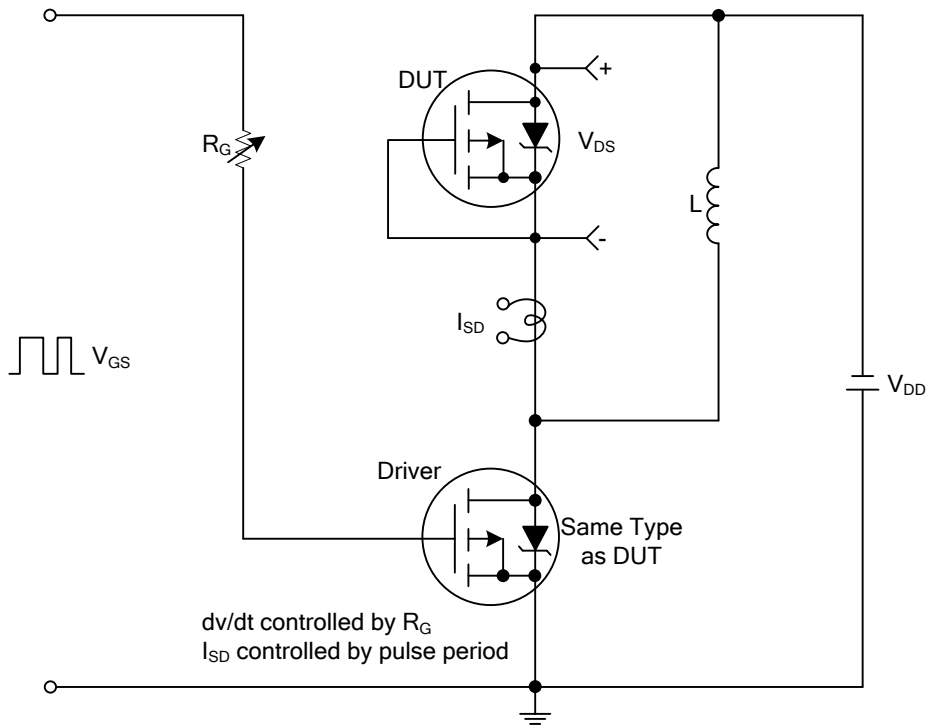
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

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	V _{GS} =20V, V _{DS} =0V			100	nA
	Reverse	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

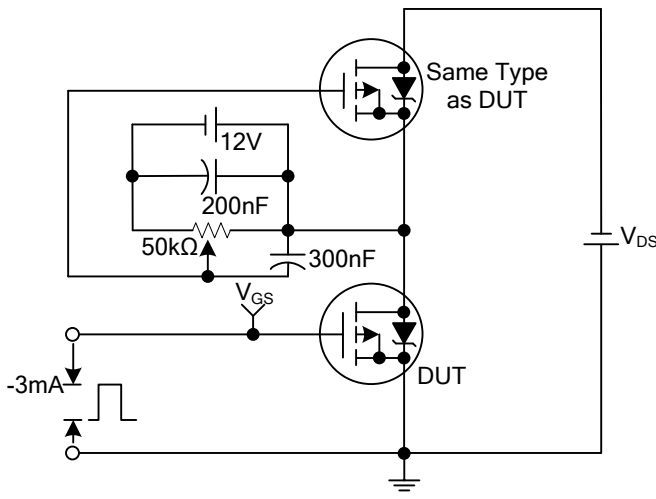
2. Pulse width≤300μs; duty cycle≤2%

■ TEST CIRCUITS AND WAVEFORMS

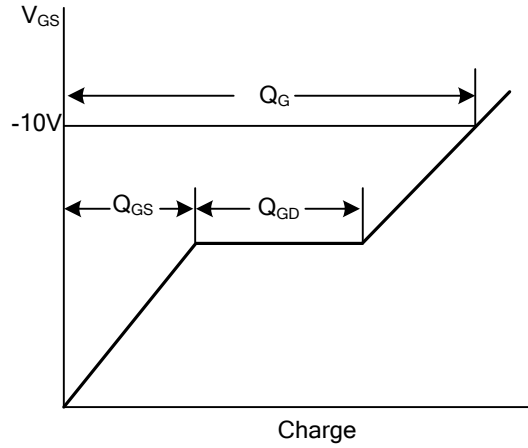


Peak Diode Recovery dv/dt Test Circuit and Waveforms

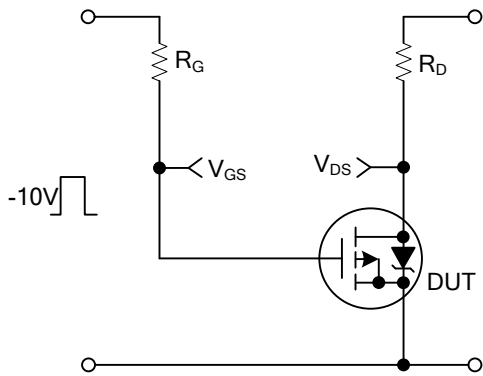
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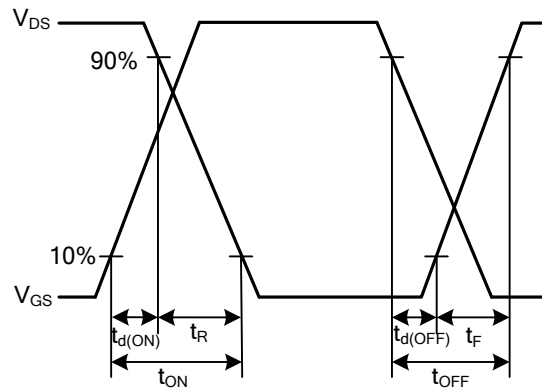
Gate Charge Test Circuit



Gate Charge Waveforms

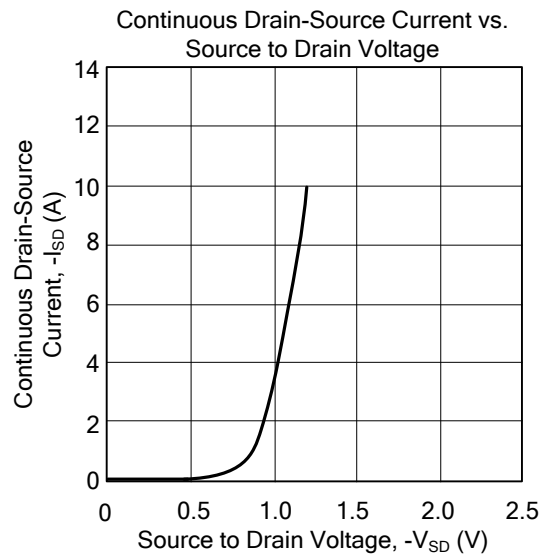
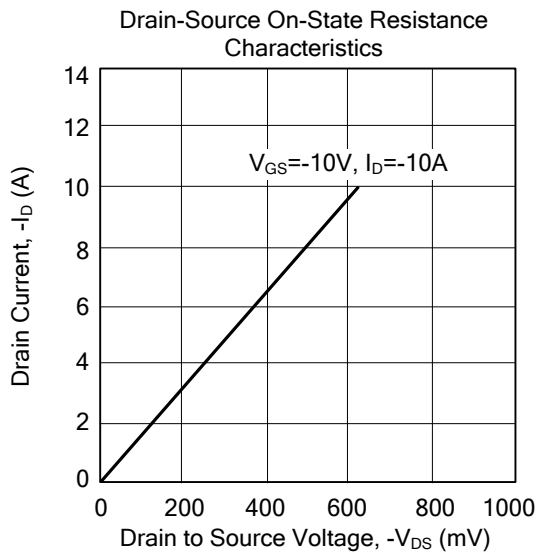
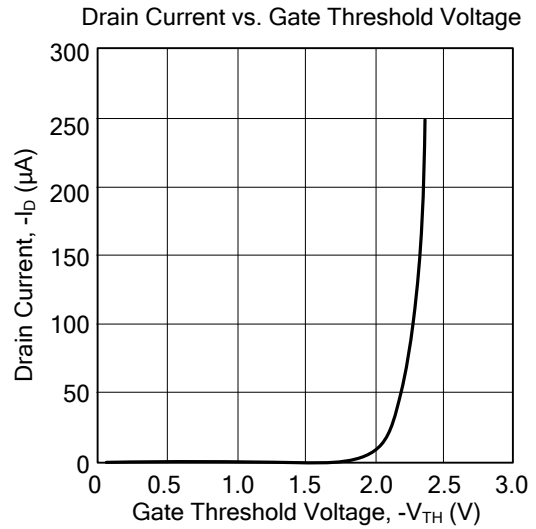
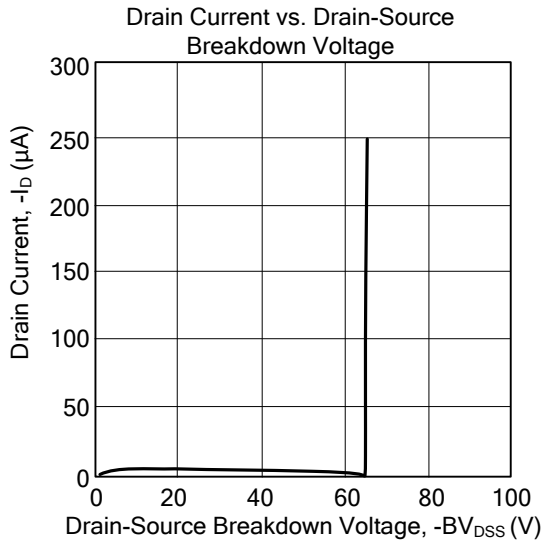


Resistive Switching Test Circuit



Resistive Switching Waveforms

■ TYPICAL CHARACTERISTICS



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