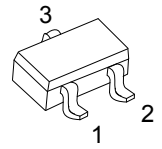
UT2035Z

Power MOSFET

-3.6A, -20V P-CHANNEL ENHANCEMENT MODE MOSFET



SOT-23
(EIAJ SC-59)

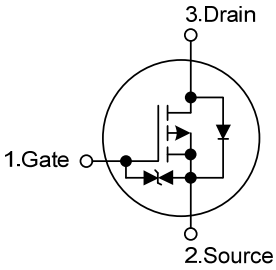
■ DESCRIPTION

The UTC **UT2035Z** is a P-channel enhancement mode MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switching speed and low gate charge, etc.

■ FEATURES

*$R_{DS(ON)}$ ≤ 42mΩ @V_{GS}=-4.5V, I_D=-4.0A
$R_{DS(ON)}$ ≤ 65mΩ @V_{GS}=-2.5V, I_D=-4.0A
$R_{DS(ON)}$ ≤ 82mΩ @V_{GS}=-1.8V, I_D=-2.0A
* High switching speed
* Low gate charge
* Low gate threshold voltage
* Low input capacitance
* Low input/output leakage

■ SYMBOL



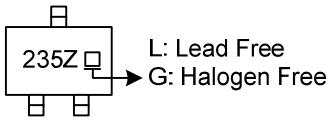
■ OR DERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2035ZL-AE3-R	UT2035ZG-AE3-R	SOT-23	G	S	D	Tape Reel

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

UT2035ZG-AE3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	-20	V
Gate-Source Voltage			V_{GSS}	±8	V
Drain Current	Continuous (Note 2)	Steady, T_A=25°C	I_D	-3.6	A
		State, T_A=70°C		-2.9	A
	Pulsed (Note 3)		I_{DM}	-24	A
Power Dissipation (Note 2)			P_D	0.81	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.
2. Device mounted on FR-4 PCB with 2oz. Copper and test pulse width t≤10s.
3. Repetitive rating, pulse width limited by junction temperature.

■ THERMAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	153.5	°C/W

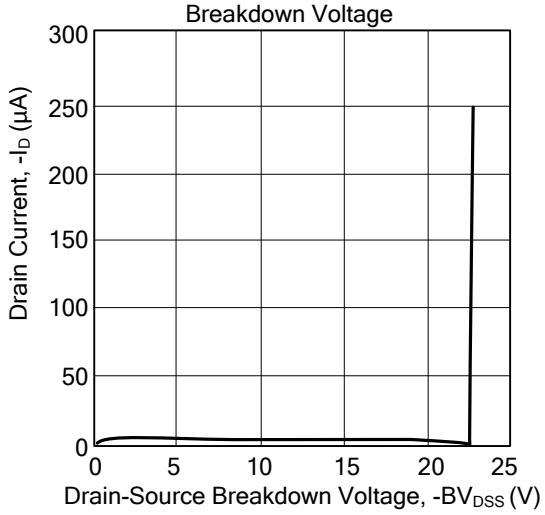
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note 1)							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=-250μA, V_{GS}=0V	-20			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1.0	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+8V, V_{DS}=0V			+10	μA
	Reverse		V_{GS}=-8V, V_{DS}=0V			-10	μA
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.7	-1.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-4.0A		30	42	mΩ
			V_{GS}=-2.5V, I_D=-4.0A		50	65	mΩ
			V_{GS}=-1.8V, I_D=-2.0A		61	82	mΩ
Forward Transfer Admittance		$\|Y_{FS}\|$	V_{DS}=-5.0V, I_D=-4.0A		14		S
Diode Forward Voltage		V_{SD}	V_{GS}=0V, I_S=-1.0A		-0.7	-1.0	V
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=-10V, f=1.0MHz		1610		pF
Output Capacitance		C_{OSS}			157		pF
Reverse Transfer Capacitance		C_{RSS}			145		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-4.0A		15.4		nC
Gate to Source Charge		Q_{GS}			2.5		nC
Gate to Drain Charge		Q_{GD}			3.3		nC
Gate Resistance		R_G	V_{DS}=0V, V_{GS}=0V, f=1MHz		9.45		Ω
Turn-ON Delay Time		$t_{D(ON)}$	V_{DS}=-10V, V_{GS}=-4.5V, I_D=-1.0A, R_G=6.0Ω, R_L=10Ω		16.8		ns
Rise Time		t_R			12.4		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			94.1		ns
Fall-Time		t_F			42.4		ns

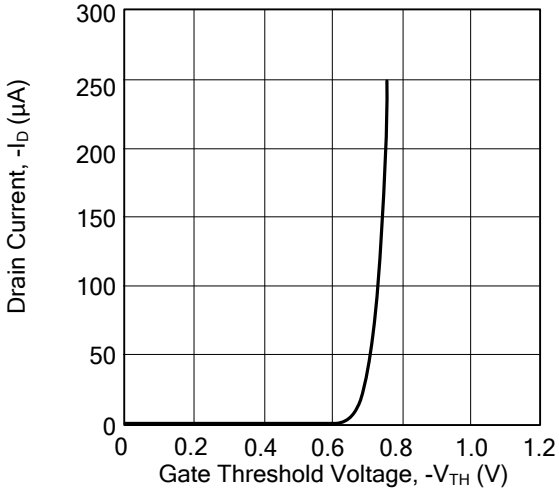
Note: Short duration pulse test used to minimize self-heating effect.

■ TYPICAL CHARACTERISTICS

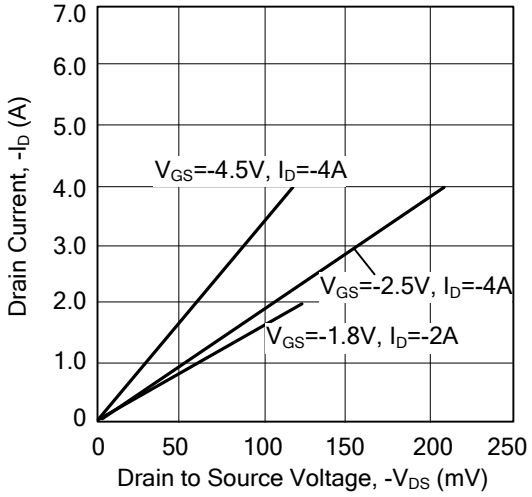
Drain Current vs. Drain-Source Breakdown Voltage



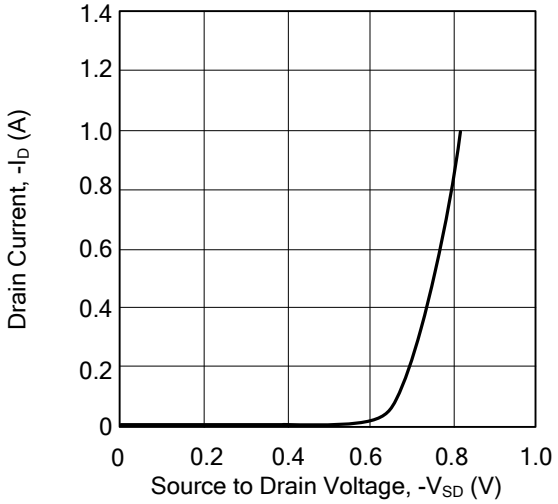
Drain Current vs. Gate Threshold Voltage



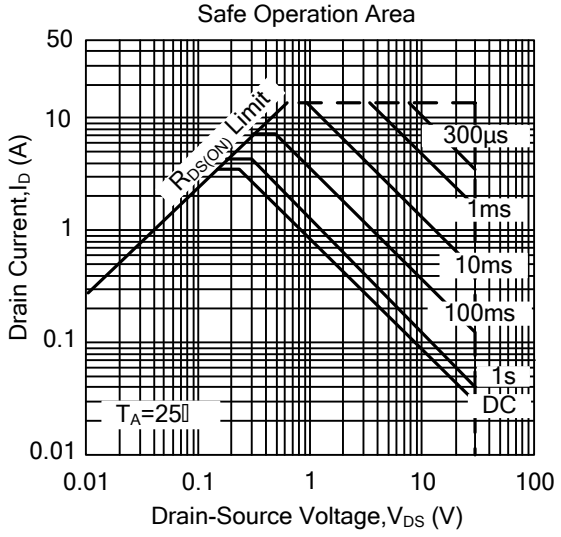
Drain-Source On-State Resistance Characteristics



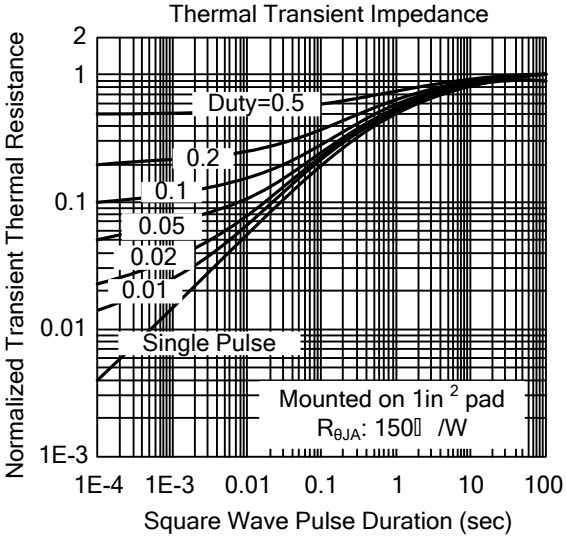
Drain Current vs. Source to Drain Voltage



Safe Operation Area

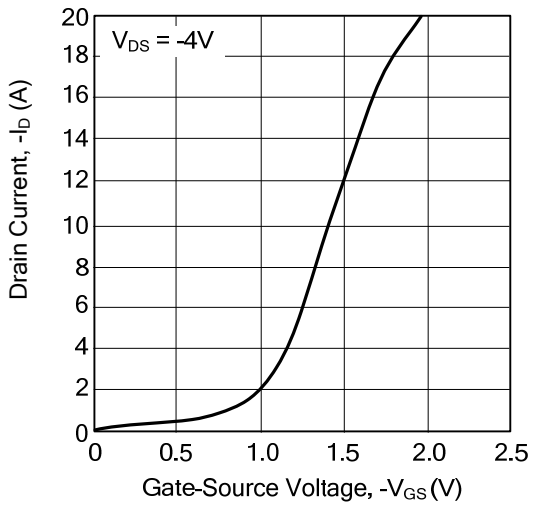


Thermal Transient Impedance



■ TYPICAL CHARACTERISTICS (Cont.)

Transfer Characteristics



On-State Characteristics