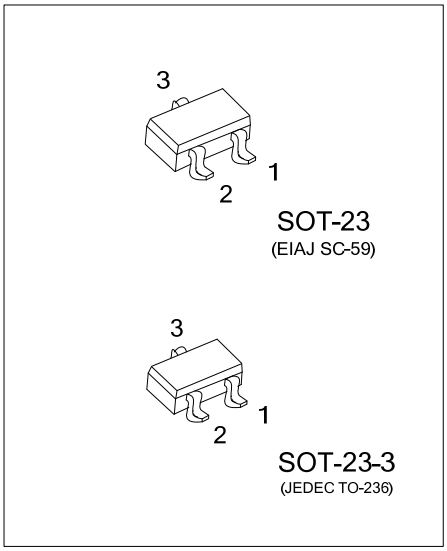
UTD351

Power MOSFET

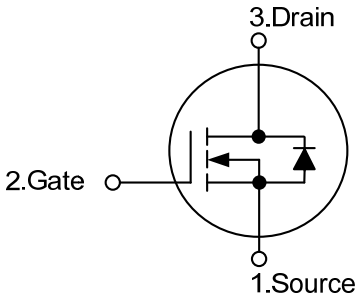
N-CHANNEL ENHANCEMENT MODE



■ DESCRIPTION

As N-Channel Logic Level MOSFET, **UTD351** has been optimized for battery power management applications. And it's produced using UTC's Trench process.

■ SYMBOL



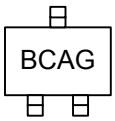
■ ORDERING INFORMATION

Order Number	Package	Pin Assignment			Packing
		1	2	3	
UTD351G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UTD351G-AE3-R	SOT-23	S	G	D	Tape Reel

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

UTD351G-AE2-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free and Lead Free

■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	
Continuous Drain Current (Note 3)	I_D	1.4	A
Pulsed Drain Current	I_{DM}	10	
Power Dissipation	P_D	0.5	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient (Note 3)	θ_{JA}		250		°C/W
Junction-to-Case	θ_{JC}		75		°C/W

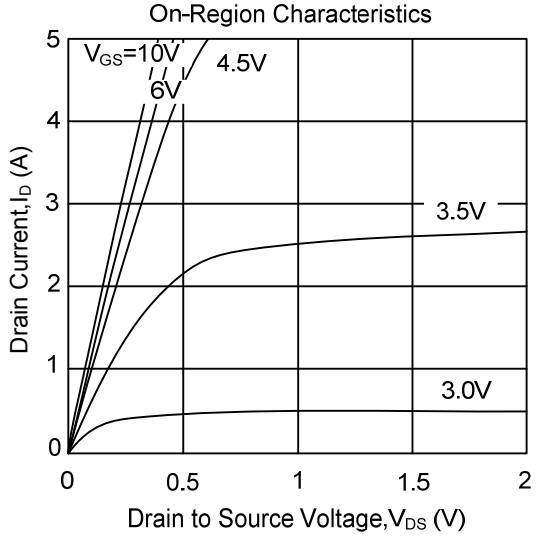
■ ELECTRICAL CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0 V, I_D =250 μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =24 V, V_{GS} =0 V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0 V			±100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	I_D=250μA, Referenced to 25°C		26		mV/℃
ON CHARACTERISTICS (Note2)						
Gate-Threshold Voltage	$V_{GS(TH)}$	V_{DS} =V_{GS}, I_D =250 μA	0.8	2.1	3	V
Static Drain–Source On–Resistance	$R_{DS(ON)}$	V_{GS} =10 V, I_D =1.4 A		92	160	mΩ
		V_{GS} =4.5 V, I_D =1.2 A		120	250	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS} =15 V, V_{GS} =0V, f=1.0MHz		145		pF
Output Capacitance	C_{OSS}			35		
Reverse Transfer Capacitance	C_{RSS}			15		
SWITCHING PARAMETERS (Note2)						
Turn-ON Delay Time	$t_{D(ON)}$	V_{DD} =15V, I_D=1A, V_{GS} =10V, R_{GEN} =6 Ω		3	6	ns
Turn-ON Rise Time	t_R			8	16	
Turn-OFF Delay Time	$t_{D(OFF)}$			16	29	
Turn-OFF Fall-Time	t_F			2	4	
Total Gate Charge	Q_G	V_{DS} =15 V,V_{GS} =4.5 V,I_D =1.4 A		1.3	1.8	nC
Gate-Source Charge	Q_{GS}			0.5		
Gate-Drain Charge	Q_{GD}			0.5		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I_S				0.42	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 0.42 A (Note 2)		0.8	1.2	V
Reverse Recovery Time	t_{RR}	I_F = 1.4 A, d_{IF}/d_t = 100 A/μs		11		ns
Reverse Recovery Charge	Q_{RR}			4		nC

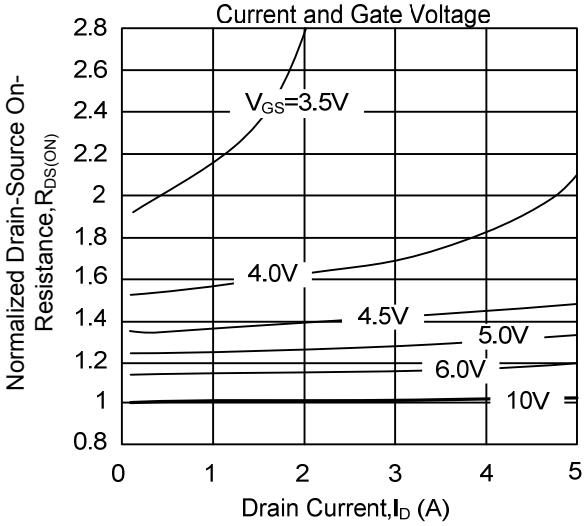
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board; 250℃/W when mounted on min.

■ TYPICAL CHARACTERISTICS

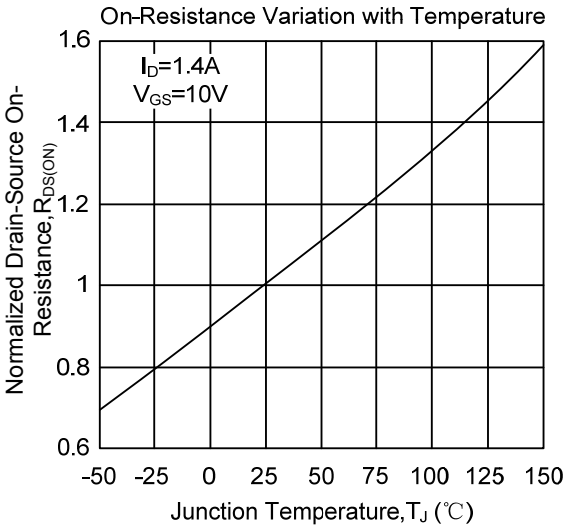
On-Region Characteristics



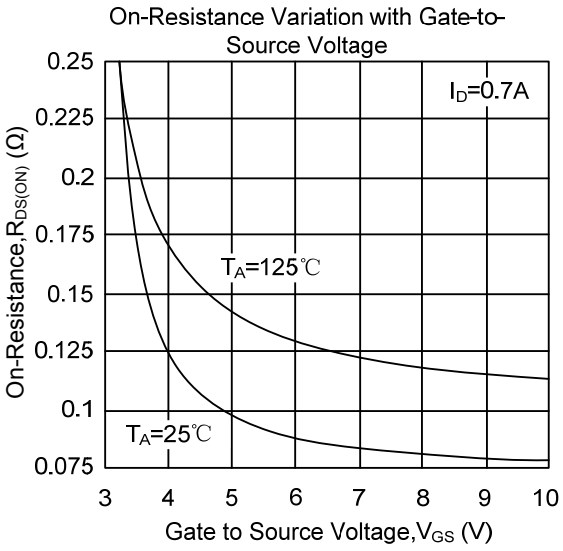
On-Resistance Variation with Drain Current and Gate Voltage



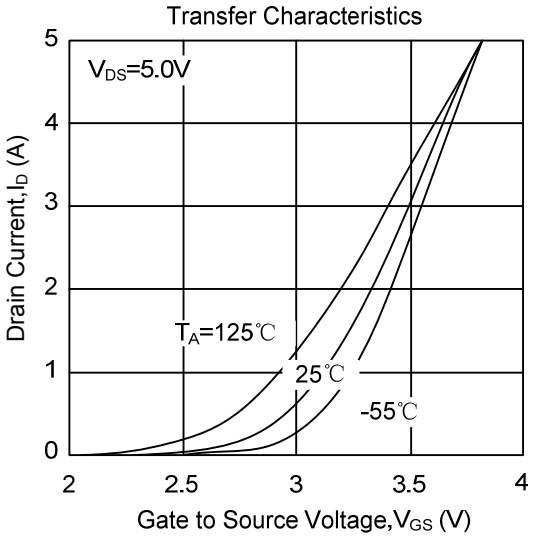
On-Resistance Variation with Temperature



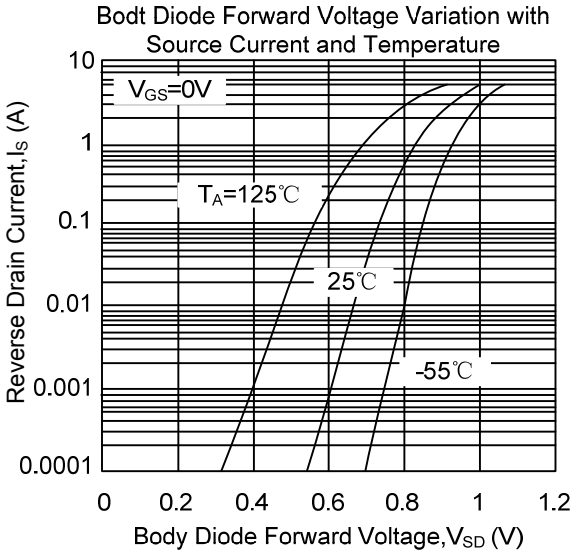
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics



Bodt Diode Forward Voltage Variation with Source Current and Temperature



■ TYPICAL CHARACTERISTICS(Cont.)