

UT3458

Power MOSFET

4.1A, 60V N-CHANNEL POWER MOSFET

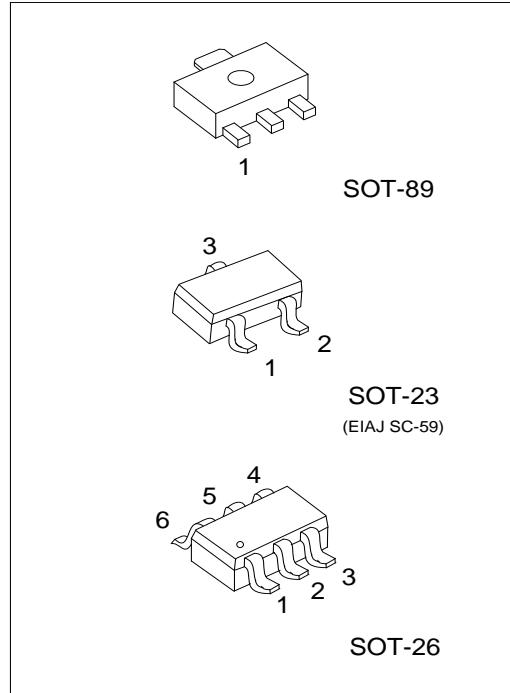
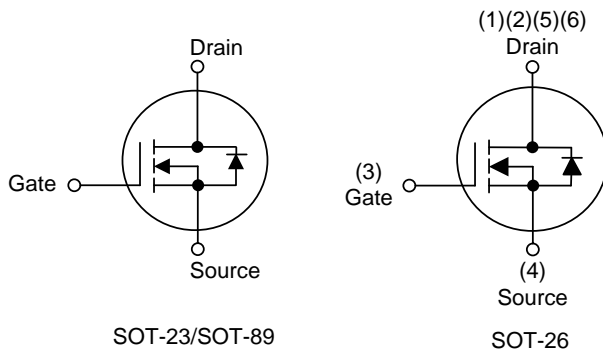
DESCRIPTION

The UTC **UT3458** is N-channel enhancement mode power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$ and low gate charge. This device can be operated with 4.5V low gate voltage.

FEATURES

- * $R_{DS(ON)} \leq 0.1 \Omega @ V_{GS}=10V, I_D=3.2A$
- $R_{DS(ON)} \leq 0.128 \Omega @ V_{GS}=4.5V, I_D=2.8A$

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT3458L-AB3-R	UT3458G-AB3-R	SOT-89	G	D	S	-	-	-	Tape Reel
UT3458L-AE3-R	UT3458G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT3458L-AG6-R	UT3458G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

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

<p>UT3458G-AB3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AB3: SOT-89, AE3: SOT-23, AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-89	SOT-23	SOT-26

■ **ABSOLUTE MAXIMUM RATINGS** ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	60	V
Gate-Source Voltage			V_{GSS}	± 20	V
Drain Current	Continuous (Note 2, 3)	$T_A=25^{\circ}\text{C}$	I_D	4.1	A
		$T_A=70^{\circ}\text{C}$		3.2	A
	Pulsed		I_{DM}	15	A
Power Dissipation (Note 2, 3)		SOT-89	P_D	2.2	W
		SOT-23		2.0	W
		SOT-26			
Junction Temperature			T_J	+150	$^{\circ}\text{C}$
Storage Temperature			T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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. Surface Mounted on FR4 Board.

3. $t \leq 5$ sec.

■ **THERMAL DATA (NOTE.)**

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	SOT-89	θ_{JA}	105	$^{\circ}\text{C/W}$
	SOT-23		125	$^{\circ}\text{C/W}$
	SOT-26			

Note: Device mounted on FR-4 substrate P_C board, 2oz copper, with 1inch square copper plate.

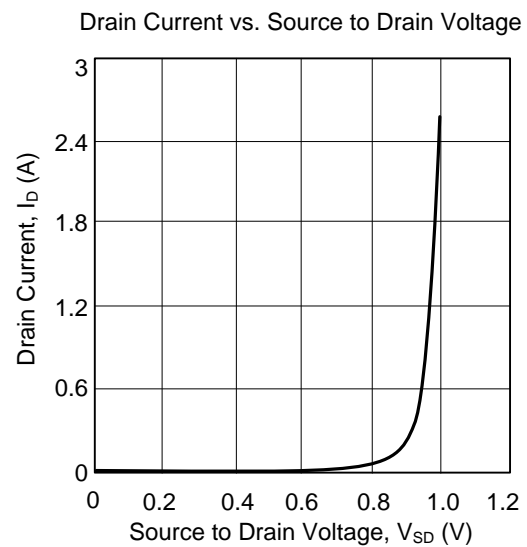
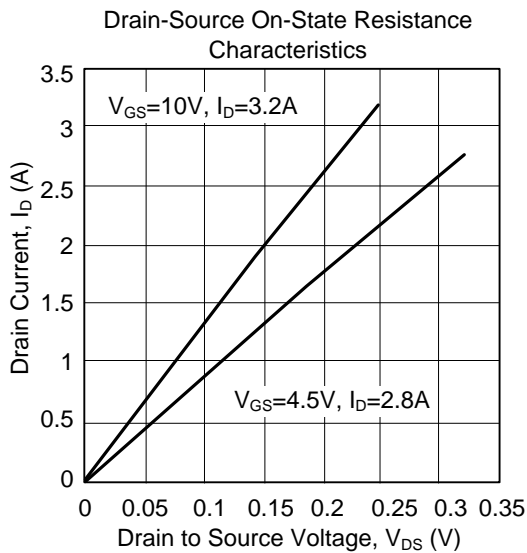
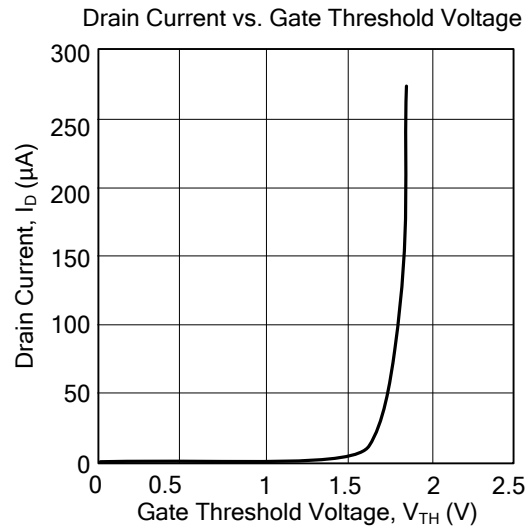
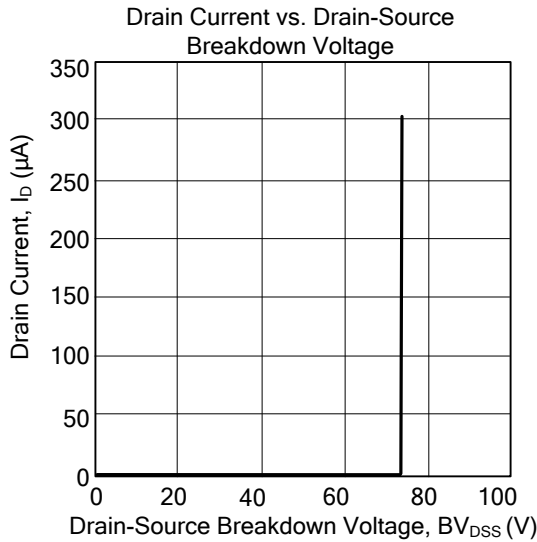
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT		
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	60			V		
Drain-Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA		
		V _{DS} =60V, V _{GS} =0V, T _J =70°C			10	μA		
Gate- Source Leakage Current	Forward	I _{GSS}				nA		
	Reverse						V _{GS} =+20V, V _{DS} =0V	+100
						-100		
ON CHARACTERISTICS								
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V		
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.2A		0.082	0.1	Ω		
		V _{GS} =4.5V, I _D =2.8A		0.105	0.128	Ω		
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	10			A		
SWITCHING PARAMETERS								
Input Capacitance	C _{ISS}	V _{DS} =30 V, V _{GS} = 0V, f = 1MHz		350		pF		
Output Capacitance	C _{OSS}			40				
Reverse Transfer Capacitance	C _{RSS}			20				
Total Gate Charge	Q _G	V _{DS} =48V, V _{GS} =10V, I _D =3.2A		7.1	11	nC		
			V _{DS} =48V, V _{GS} =4.5V, I _D =3.2A		3.5		5.5	
Gate to Source Charge	Q _{GS}	V _{DS} =48V, V _{GS} =4.5V, I _D =3.2A		1.1		nC		
Gate to Drain Charge	Q _{GD}			0.95				
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =30V, I _D ≈2.5A, R _L =12Ω, V _{GEN} =4.5V, R _G =1Ω(Note 1, 2)		16	25	ns		
Rise Time	t _R			17	30			
Turn-OFF Delay Time	t _{D(OFF)}			12	20			
Fall Time	t _F			10	15			
Turn-ON Delay Time	t _{D(ON)}			5	10			
Rise Time	t _R			12	20			
Turn-OFF Delay Time	t _{D(OFF)}			18	30			
Fall Time	t _F			10	15			
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS								
Maximum Body-Diode Continuous Current	I _S						2.9	A
Maximum Body-Diode Pulsed Current	I _{SM}				10	A		
Drain-Source Diode Forward Voltage	V _{SD}	I _S =2.5A, V _{GS} =0V		0.8	1.2	V		
Body Diode Reverse Recovery Time	t _{rr}	I _F =2.5A, di/dt=100A/μs (Note 1)		25	50	ns		

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%

2. Guaranteed by design, not subject to production testing

TYPICAL CHARACTERISTICS



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