

UT3458

Power MOSFET

4.1A, 60V N-CHANNEL POWER MOSFET

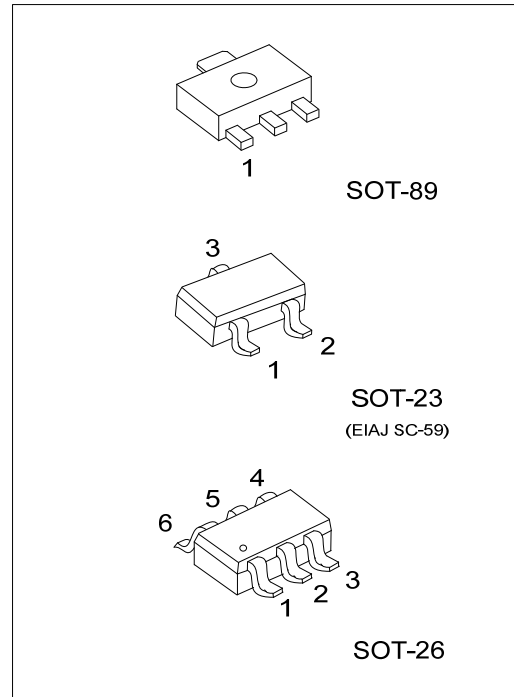
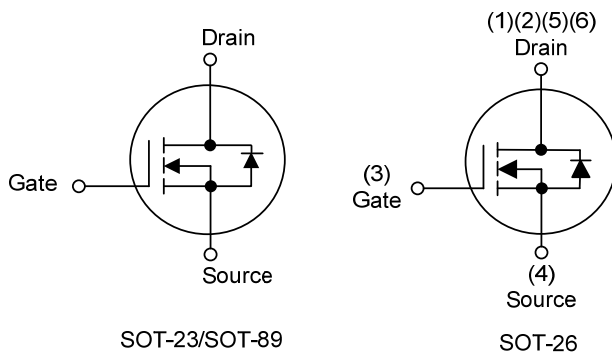
DESCRIPTION

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



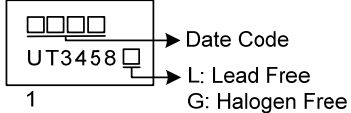
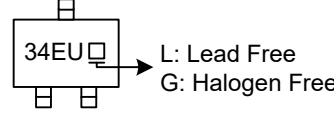
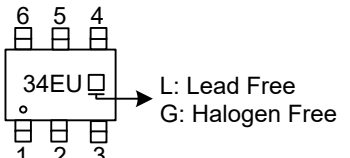
ORDERING INFORMATION

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	3.3	W
		SOT-23		3.1	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

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			
Junction to Case	SOT-89	θ_{JC}	37	$^\circ\text{C/W}$
	SOT-23		40	$^\circ\text{C/W}$
	SOT-26			

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

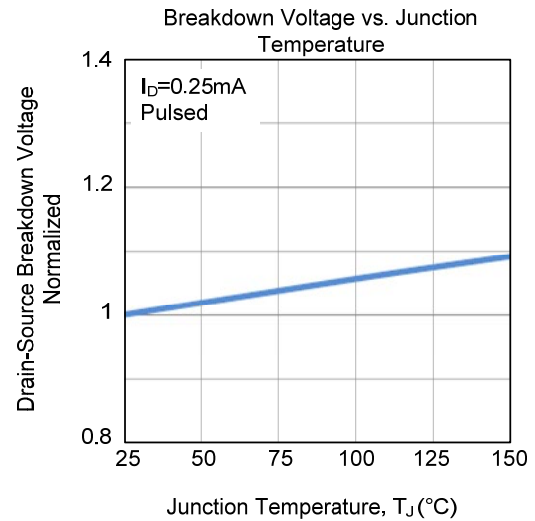
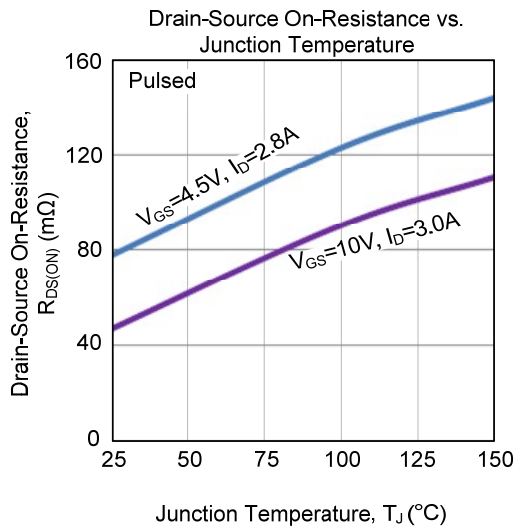
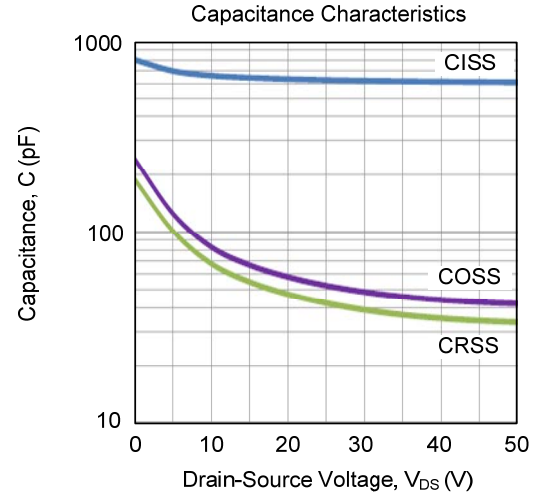
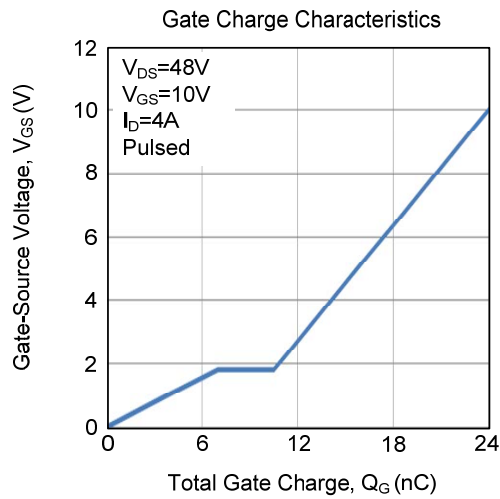
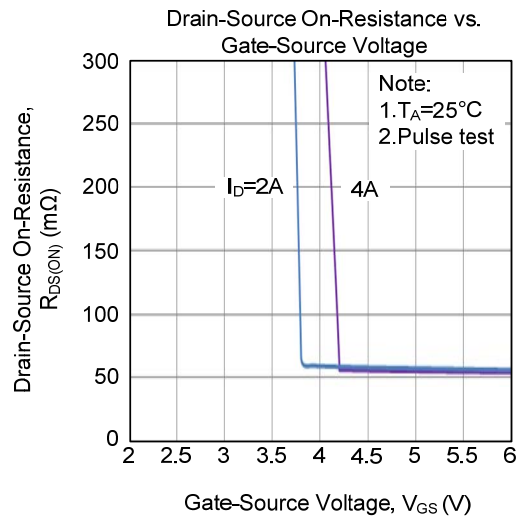
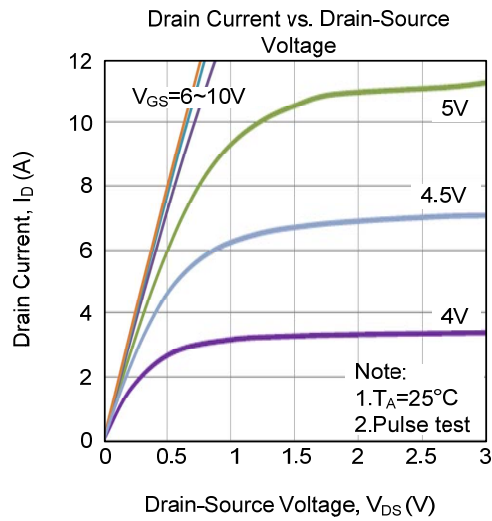
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise noted)

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
Gate- Source Leakage Current	Forward	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse	V _{GS} =-20V, V _{DS} =0V			-100	nA
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			0.1	Ω
		V _{GS} =4.5V, I _D =2.8A			0.128	Ω
SWITCHING PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} = 0V, f = 1MHz		630		pF
Output Capacitance	C _{OSS}			52		pF
Reverse Transfer Capacitance	C _{RSS}			42		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _G	V _{DS} =48V, V _{GS} =10V, I _D =4.0A (Note 1, 2)		24		nC
Gate to Source Charge	Q _{GS}			7		nC
Gate to Drain Charge	Q _{GD}			3.5		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =30V, V _{GS} =10V, I _D =4.0A, R _G =3.3Ω (Note 1, 2)		7		nC
Rise Time	t _R			16		nC
Turn-OFF Delay Time	t _{D(OFF)}			18		nC
Fall Time	t _F			20		nC
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 _S =4.0A, V _{GS} =0V, dI _F /dt=100A/μs		50		ns
Body Diode Reverse Recovery Charge	Q _{rr}			42		nC

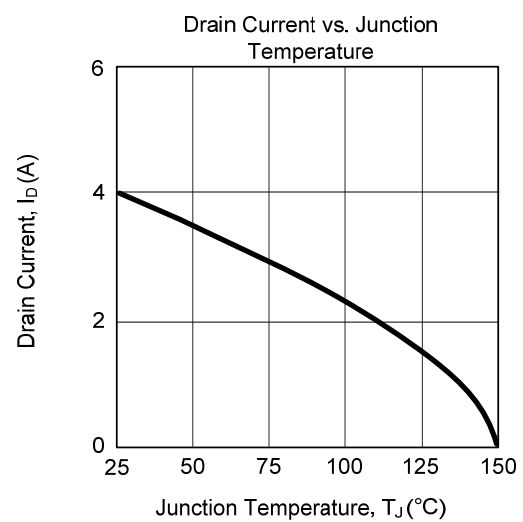
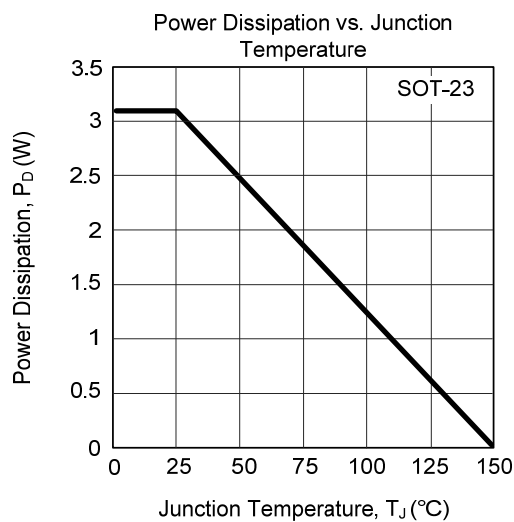
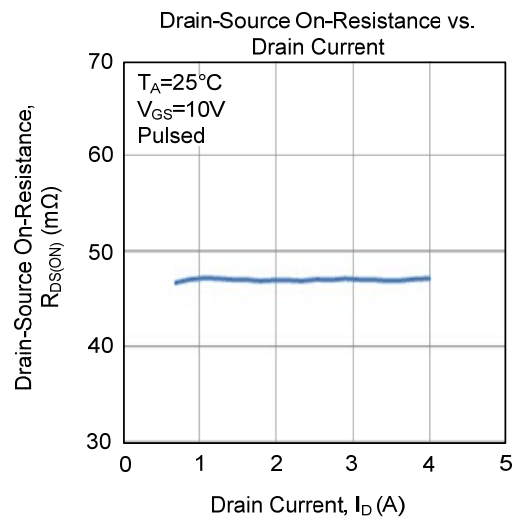
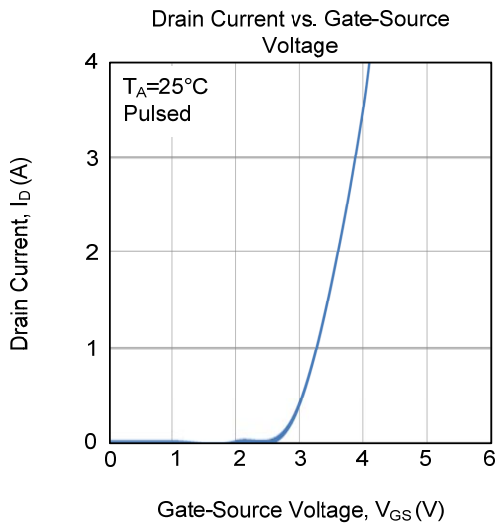
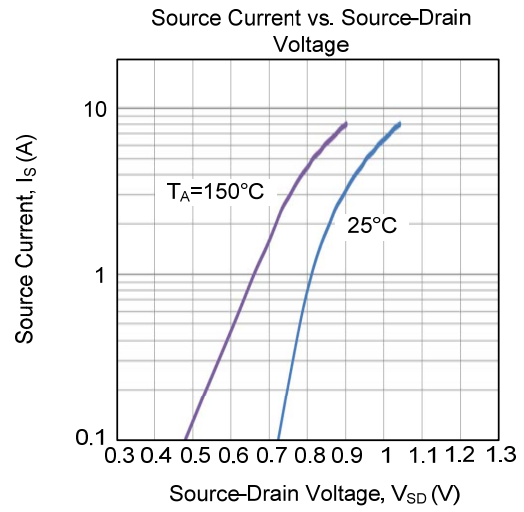
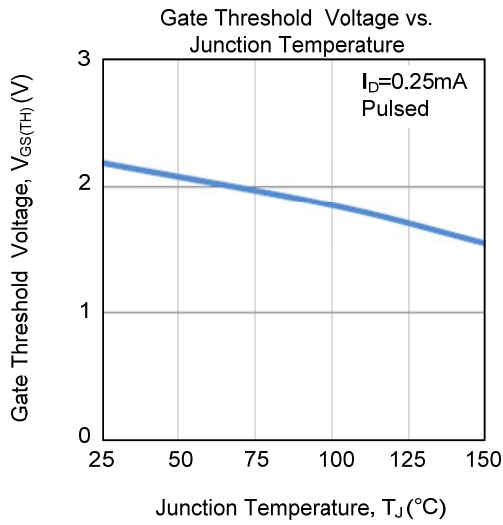
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Guaranteed by design, not subject to production testing.

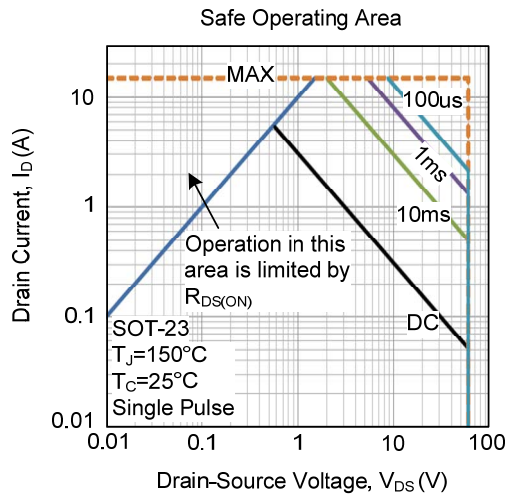
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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