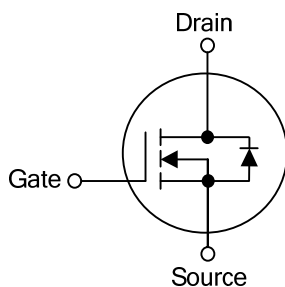


**UTM2054****Power MOSFET****N-CHANNEL ENHANCEMENT
MODE****DESCRIPTION**

The **UTM2054** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

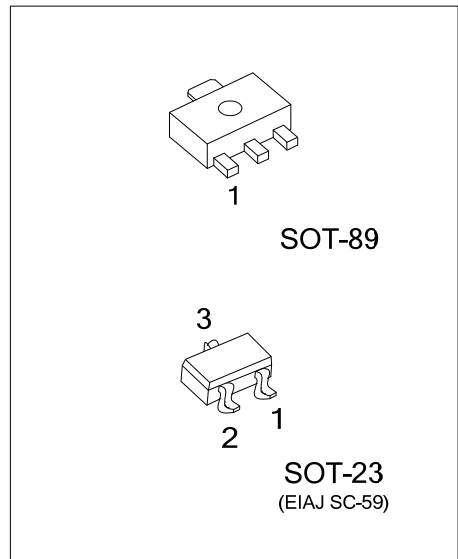
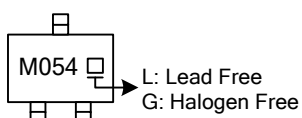
FEATURES

- * $R_{DS(ON)} = 35m\Omega @ V_{GS}=10V$
- * $R_{DS(ON)} = 45m\Omega @ V_{GS}=4.5V$
- * $R_{DS(ON)} = 110m\Omega @ V_{GS}=2.5V$
- * Ultra low gate charge (typical 11.5 nC)
- * Low reverse transfer capacitance (C_{RSS} = typical 60 pF)
- * Fast switching capability
- * Avalanche energy specified
- * Improved dv/dt capability, high ruggedness

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTM2054L-AB3-R	UTM2054G-AB3-R	SOT-89	G	D	S	Tape Reel
UTM2054L-AE3-R	UTM2054G-AE3-R	SOT-23	S	G	D	Tape Reel

UTM2054L-AB3-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel (2) AB3: SOT-89, AE3: SOT-23 (3) L: Lead Free, G: Halogen Free
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MARKING (For SOT-23 Package)

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 16	V
Drain Current ($V_{GS}=10\text{V}$)	Continuous	I_D	5	A
	Pulsed	I_{DM}	20	
Diode Continuous Forward Current		I_S	3	A
Power Dissipation	SOT-89	P_D	1.47	W
	SOT-23		1.25	W
Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, 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	20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±16V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _p =250μA	0.6	0.9	1.5	V
Static Drain-Source On-State Resistance (Note)	R _{DS(ON)}	V _{GS} =10V, I _{DS} =5A		35	40	mΩ
		V _{GS} =4.5V, I _{DS} =3.5A		45	54	
		V _{GS} =2.5V, I _{DS} =2.5A		110	130	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		450		pF
Output Capacitance	C _{OSS}			100		pF
Reverse Transfer Capacitance	C _{RSS}			60		pF
Gate resistance	R _G	V _{GS} =0V, V _{DS} =0V, f=1MHz		2.5		Ω
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(ON)}	V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =4.5V, R _G =6Ω		7	10	ns
Turn-On Rise Time	t _R			15	25	ns
Turn-Off Delay Time	t _{D(OFF)}			19	26	ns
Turn-Off Fall Time	t _F	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =5 A		6	7	ns
Total Gate Charge	Q _G			11.5	15	nC
Gate-Source Charge	Q _{GS}			3.8		nC
Gate-Drain Charge	Q _{DD}			5.2		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage (Note)	V _{SD}	I _{SD} =3A, V _{GS} =0V		0.7	1.3	V

Note: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

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