



200 VOLTS, 150 AMPS LOW REVERSE LEAKAGE SCHOTTKY DIODE

Screening in reference to MIL-PRF-19500 available

DESCRIPTION

The 1N6909UTK3AS device polarity is anode-to-strap (standard) and is also available optionally in 1N6909UTK3CS as cathode-to-strap. This part can also be ordered in a strapless version. Up-screening for high-reliability applications is also available. Microsemi also offers numerous other products to meet higher and lower power voltage regulation applications.

Important: For the latest information, visit our website <http://www.microsemi.com>.

FEATURES

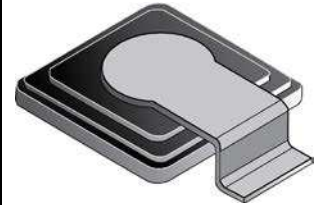
- JEDEC registered 1N6909.
- Oxide passivated structure.
- Guard ring protection for increased reverse energy capability.
- Epitaxial structure minimizes forward voltage drop.
- Hermetically sealed, low profile ceramic surface mount power package.
- Up-screening available in reference to MIL-PRF-19500 (see [part nomenclature](#) for all available options).
- RoHS compliant versions available (commercial grade only).

APPLICATIONS / BENEFITS

- Low package inductance.
- Very low thermal resistance.
- Also available with no strap as 1N6909UTK3 by special request.
- Mechanically rugged.

MAXIMUM RATINGS @ $T_C = +25\text{ }^\circ\text{C}$, unless otherwise noted

Parameters / Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature Range	T_j and T_{stg}	-65 to +150	$^\circ\text{C}$
Thermal Resistance, Junction to Case (Anode-to-Strap)	$R_{\theta JC}$	0.20	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case (Cathode-to-Strap, Also applicable to strapless option)	$R_{\theta JC}$	0.35	$^\circ\text{C/W}$
Peak Repetitive Reverse Voltage	V_{RRM}	200	V
Working Peak Reverse Voltage	V_{RWM}	200	V
DC Blocking Voltage	V_R	200	V
Average Rectified Forward Current, $T_C \leq 125\text{ }^\circ\text{C}$	$I_{F(ave)}$	150	A
Derating, Forward Current, $T_C \geq 125\text{ }^\circ\text{C}$	dl_F / dT	4	$\text{A}/^\circ\text{C}$
Non-repetitive Peak Surge Current (tp = 8.3 ms, half sine-wave)	I_{FSM}	2000	A
Peak Repetitive Reverse Surge Current (tp = 1 μs , f = 1 kHz)	I_{RRM}	2	A



ThinKey™ 3 Package

MSC – Lawrence

6 Lake Street,
Lawrence, MA 01841
Tel: 1-800-446-1158 or
(978) 620-2600
Fax: (978) 689-0803

MSC – Ireland

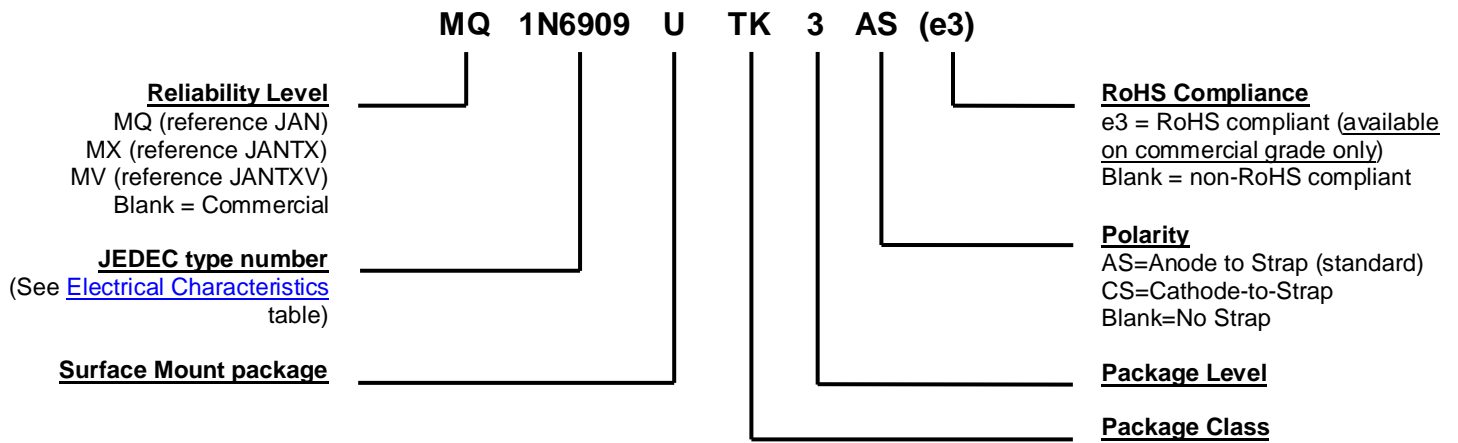
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:

www.microsemi.com

MECHANICAL and PACKAGING

- CASE: Ceramic-molybdenum Thinkey 3.
- TERMINALS: SnPb solder or RoHS compliant matte/tin (on commercial grade only) coated.
- MARKING: Part number and polarity symbol.
- POLARITY: Standard is anode to strap. Reverse is cathode to strap.
- WEIGHT: Approximately 1.7 grams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

SYMBOLS & DEFINITIONS

Symbol	Definition
f	frequency
I _F	Forward current, dc
I _R	Reverse current, dc
T _C	Case temperature
t _p	Pulse time
V _R	Reverse Voltage, dc

ELECTRICAL CHARACTERISTICS @ $T_A = +25\text{ }^\circ\text{C}$, unless otherwise noted

Parameters / Test Conditions	Symbol	MIN	TYP	MAX	Unit
Reverse (Leakage) Current $V_R = 200\text{ V}$, $T_C = 25\text{ }^\circ\text{C}$	I_{R25}		75	100	μA
$V_R = 200\text{ V}$, $T_C = +125\text{ }^\circ\text{C}$	I_{R125}		1	5	mA
Forward Voltage Pulse test, pulse width = 300 μs ; duty cycle $\leq 2\%$ $I_F = 10\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	V_{F1}		650	700	mV
$I_F = 50\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	V_{F2}		750	760	mV
$I_F = 100\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	V_{F3}		825	850	mV
$I_F = 150\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	V_{F4}		850	900	mV
$I_F = 200\text{ A}$, $T_C = 25\text{ }^\circ\text{C}$	V_{F7}		910	-	mV
$I_F = 100\text{ A}$, $T_C = -55\text{ }^\circ\text{C}$	V_{F5}		860	950	mV
$I_F = 150\text{ A}$, $T_C = +125\text{ }^\circ\text{C}$	V_{F6}		700	800	mV
Junction Capacitance $V_R = 10\text{ V}$	C_{j1}		1800	3200	pF
$V_R = 5\text{ V}$	C_{j2}		3000		pF
Breakdown Voltage $I_R = 1\text{ mA}$, $T_C = 25\text{ }^\circ\text{C}$	B_{VR}	200	220		V
$I_R = 1\text{ mA}$, $T_C = -55\text{ }^\circ\text{C}$		200	205		V

GRAPHS

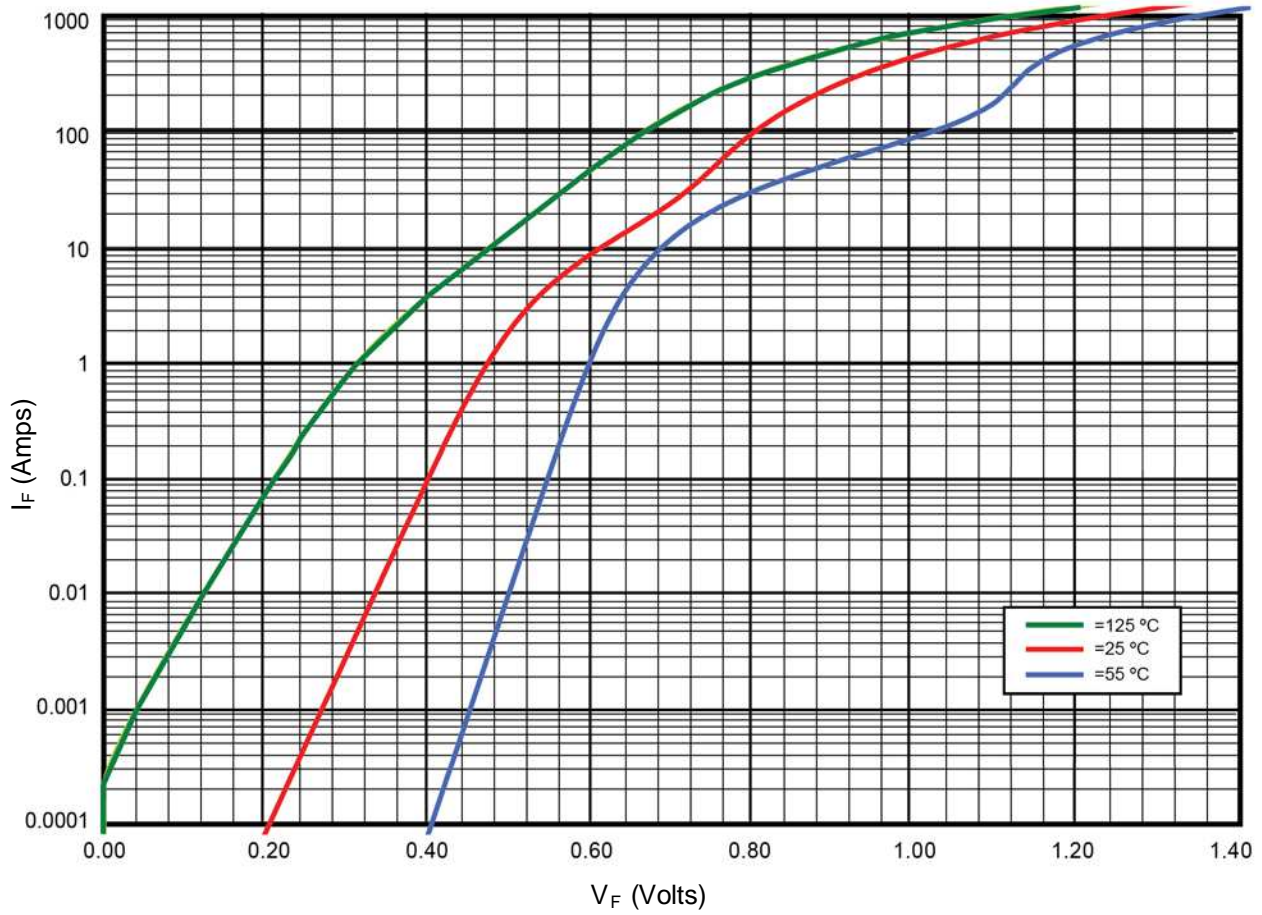


FIGURE 1
Schottky $V_F - I_F$ Characteristics

GRAPHS (continued)

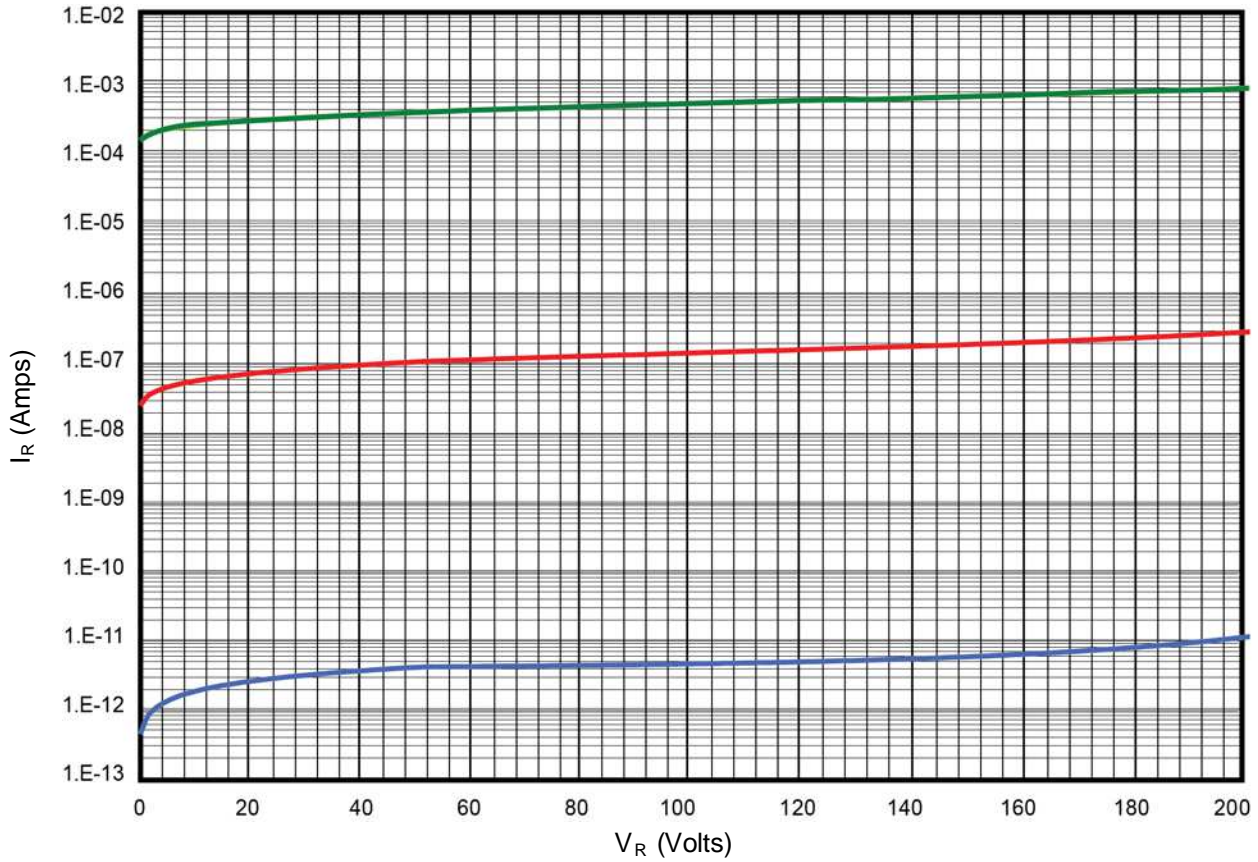


FIGURE 2
Schottky V_R vs I_R

GRAPHS (continued)

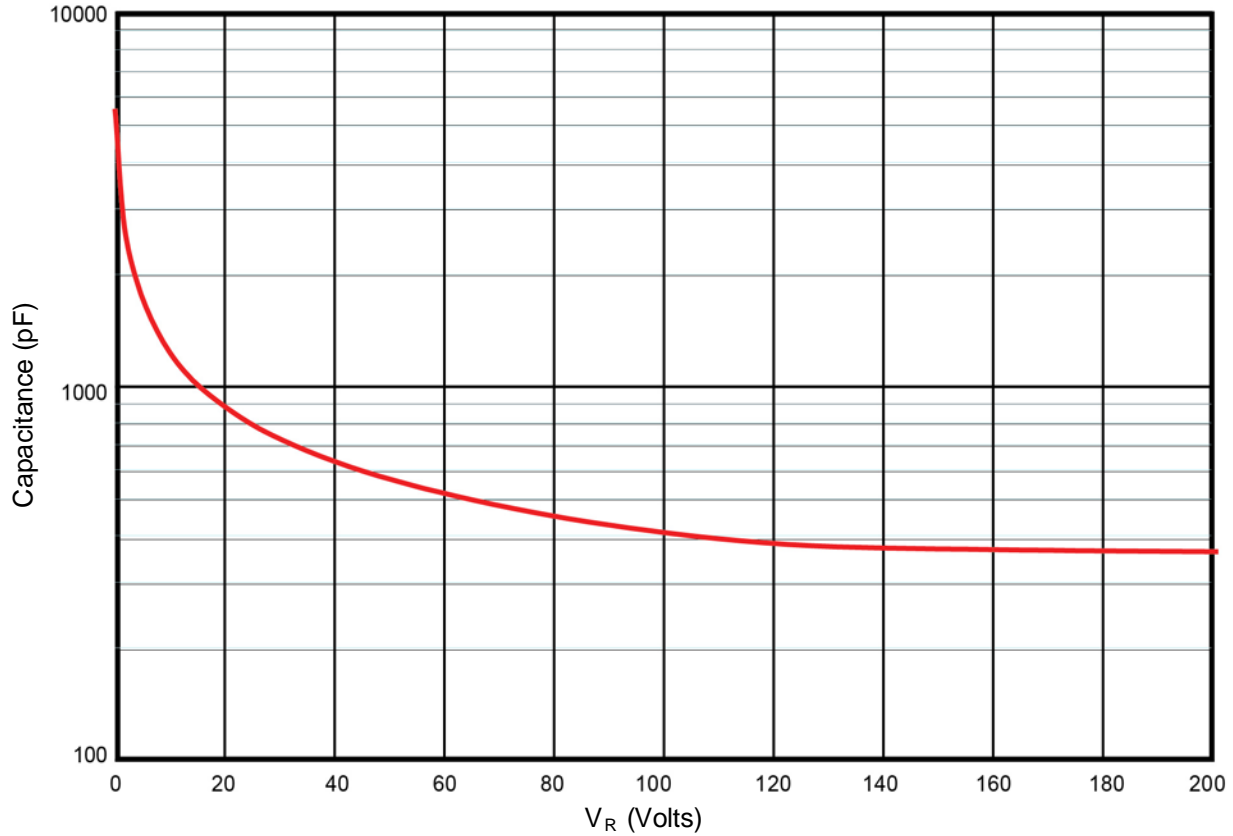
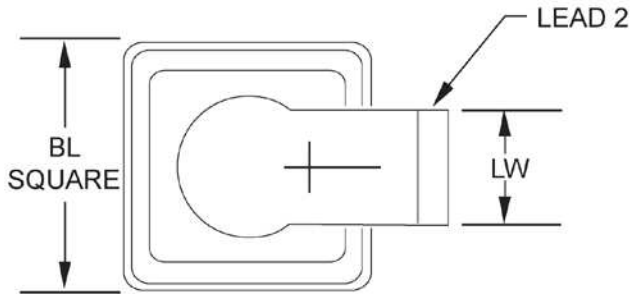


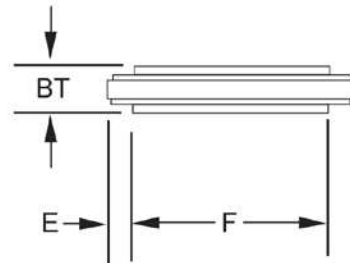
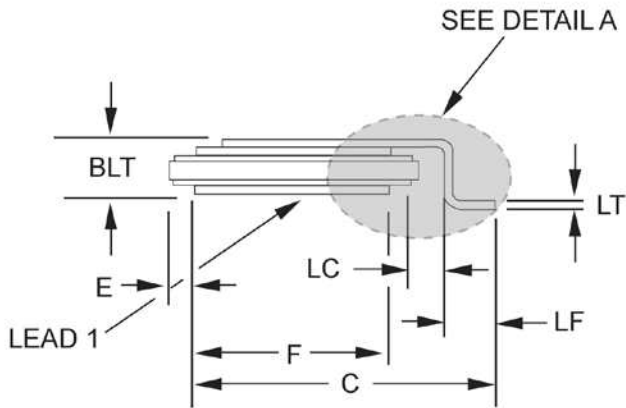
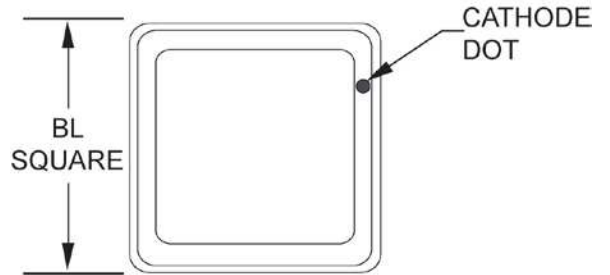
FIGURE 3
 V_R vs Total Capacitance ($T_J = 25\text{ }^\circ\text{C}$)

PACKAGE DIMENSIONS

WITH STRAP

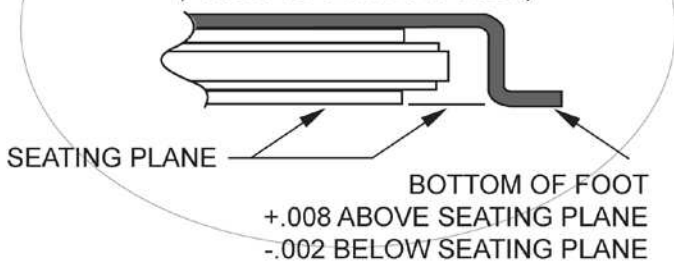


WITHOUT STRAP



DETAIL A

SEATING PLANE CO-PLANARITY
AFTER FINAL ASSEMBLY
(PRIOR TO SOLDER FINISH)



Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
BL	.420	.440	10.67	11.18
BT		.115		2.92
BLT		.125		3.18
C	.469	.509	11.91	12.93
E	.038 NOM		.97 NOM	
F	.331	.341	8.41	8.66
LC	.040 NOM		1.02 NOM	
LF	.055	.075	1.40	1.91
LT	.005	.015	.127	.381
LW	.185	.215	4.70	5.46

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.

SEE PAD LAYOUT ON NEXT PAGE.

PAD LAYOUT

