



P-CHANNEL J-FET

Screening in reference to MIL-PRF-19500 available

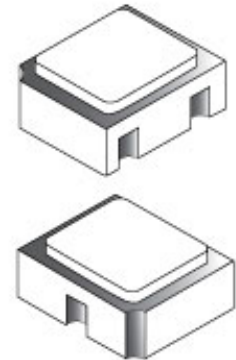
DESCRIPTION

This low-profile surface mount device is available in military equivalents for high-reliability applications. 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

- Surface mount equivalent to JEDEC registered 2N5114 thru 2N5116 series.
- Low-profile ceramic surface mount package.
- Screening in reference to MIL-PRF-19500 is available. (See [part nomenclature](#).)
- RoHS compliant versions available (commercial grade only).



UB Package

APPLICATIONS / BENEFITS

- Low-profile UB package.
- Lightweight.

Also available in:

TO-18 package

(leadless)

 [2N5114 – 2N5116](#)

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

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J and T_{STG}	-65 to +200	$^\circ\text{C}$
Gate-Source Voltage ⁽¹⁾	V_{GS}	30	V
Drain-Source Voltage	V_{DS}	30	V
Drain-Gate Voltage ⁽¹⁾	V_{DG}	30	V
Gate Current	I_G	50	mA
Steady-State Power Dissipation @ $T_A = +25^\circ\text{C}$ ⁽²⁾	P_D	0.500	W

- Notes:**
1. Symmetrical geometry allows operation of those units with source / drain leads interchanged.
 2. Derate linearly 3.0 mW/ $^\circ\text{C}$ for $T_A > +25^\circ\text{C}$.

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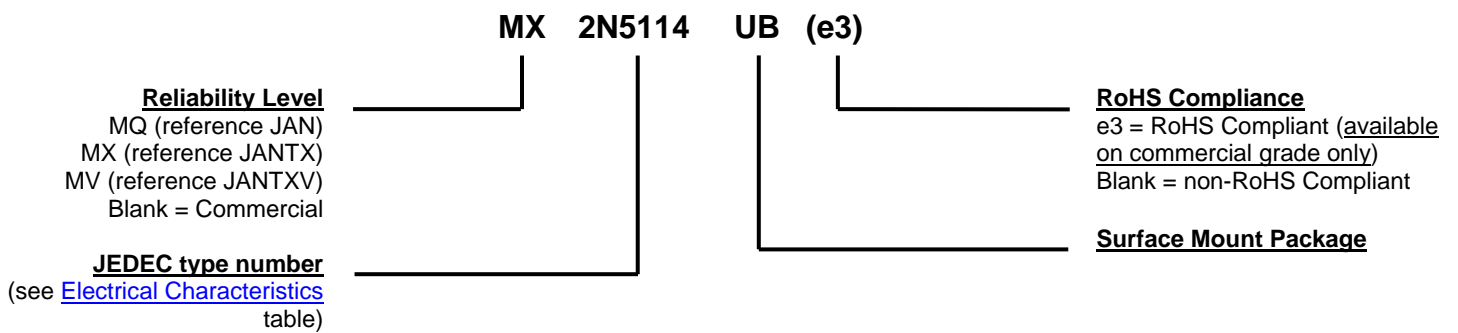
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MECHANICAL and PACKAGING

- CASE: Ceramic.
- TERMINALS: Gold Plating over Nickel underplate. RoHS compliant Matte/Tin available on commercial grade only.
- MARKING: Part number, date code, manufacturer's ID.
- TAPE & REEL option: Standard per EIA-418D. Consult factory for quantities.
- WEIGHT: < 0.04 Grams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE


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

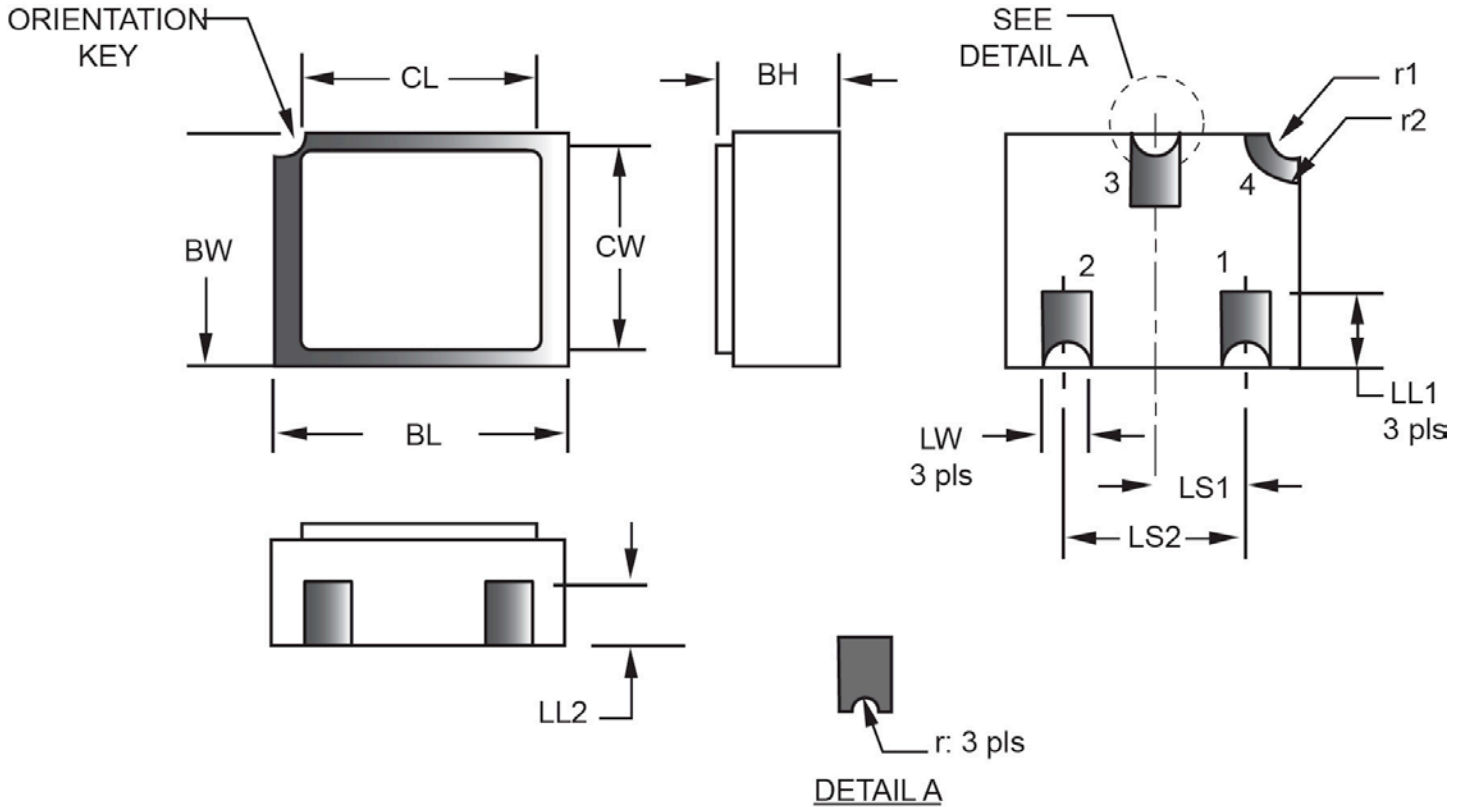
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate-Source Breakdown Voltage $V_{DS} = 0, I_G = 1.0 \mu\text{A}$	$V_{(BR)GSS}$	30		V
Drain-Source "On" State Voltage $V_{GS} = 0 \text{ V}, I_D = -15 \text{ mA}$ $V_{GS} = 0 \text{ V}, I_D = -7.0 \text{ mA}$ $V_{GS} = 0 \text{ V}, I_D = -3.0 \text{ mA}$	$V_{DS(on)}$		-1.3 -0.8 -0.6	V
Gate Reverse Current $V_{DS} = 0, V_{GS} = 20 \text{ V}$	I_{GSS}		500	pA
Drain Current Cutoff $V_{GS} = 12 \text{ V}, V_{DS} = -15 \text{ V}$ $V_{GS} = 7.0 \text{ V}, V_{DS} = -15 \text{ V}$ $V_{GS} = 5.0 \text{ V}, V_{DS} = -15 \text{ V}$	$I_{D(off)}$		-500 -500 -500	pA
Zero Gate Voltage Drain Current $V_{GS} = 0, V_{DS} = -18\text{V}$ $V_{GS} = 0, V_{DS} = -15\text{V}$ $V_{GS} = 0, V_{DS} = -15\text{V}$	I_{DSS}	-30 -15 -5.0	-90 -60 -25	mA
Gate-Source Cutoff $V_{DS} = -15, I_D = -1.0 \text{ nA}$ $V_{DS} = -15, I_D = -1.0 \text{ nA}$ $V_{DS} = -15, I_D = -1.0 \text{ nA}$	$V_{GS(off)}$	5.0 3.0 1.0	10 6.0 4.0	V

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal Drain-Source "On" State Resistance $V_{GS} = 0, I_D = -1.0 \text{ mA}$	$r_{ds(on)1}$		75 100 175	Ω
Small-Signal Drain-Source "On" State Resistance $V_{GS} = 0, I_D = 0; f = 1 \text{ kHz}$	$r_{ds(on)2}$		75 100 175	Ω
Small-Signal, Common-Source Short-Circuit Reverse Transfer Capacitance $V_{GS} = 12 \text{ V}, V_{DS} = 0$ $V_{GS} = 7.0 \text{ V}, V_{DS} = 0$ $V_{GS} = 5.0 \text{ V}, V_{DS} = 0$	C_{rss}		7.0	pF
Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = 0, V_{DS} = -15 \text{ V}, f = 1.0 \text{ MHz}$	C_{iss}		25 27	pF

ELECTRICAL CHARACTERISTICS @ $T_A = +25^\circ\text{C}$ unless otherwise noted. (continued)**SWITCHING CHARACTERISTICS**

Parameters / Test Conditions		Symbol	Min.	Max.	Unit
Turn-On Delay Time	2N5114UB	$T_{d(on)}$		6	ηs
	2N5115UB			10	
	2N5116UB			25	
Rise Time	2N5114UB	t_r		10	ηs
	2N5115UB			20	
	2N5116UB			35	
Turn-Off Delay Time	2N5114UB	$T_{d(off)}$		6	ηs
	2N5115UB			8	
	2N5116UB			20	

PACKAGE DIMENSIONS


Symbol	Dimensions				Note	Symbol	Dimensions				Note
	inch		millimeters				inch		millimeters		
	Min	Max	Min	Max			Min	Max	Min	Max	
BH	.046	.056	1.17	1.42		LS1	.036	.040	0.91	1.02	
BL	.115	.128	2.92	3.25		LS2	.071	.079	1.81	2.01	
BW	.085	.108	2.16	2.74		LW	0.16	0.24	0.41	0.61	
CL		.128		3.25		r		.008		.203	
CW		.108		2.74		r1		.012		.305	
LL1	.022	.038	0.56	0.97		r2		.022		.559	
LL2	.017	.035	0.43	0.89							

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Hatched areas on package denote metallized areas (tungsten with gold plating 60 micro inches minimum over 80 micro inches minimum nickel).
4. Pad 1 = drain, Pad 2 = source, Pad 3 = gate, Pad 4 = shielding connected to the lid.
5. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.