



**Semelab**

**Mil / Aerospace Division**

## HERMETIC SURFACE MOUNT PACKAGES



SEMELAB offers seven ceramic package styles intended for use in Space Vehicles, Aircraft and other critical applications all intended for Surface Mount Applications.

### SOT23 HERMETIC CERAMIC SURFACE MOUNT PACKAGE (LCC1)

Designed specifically to accept small signal transistor and diode die the SOT23 Ceramic Surface Mount Package has found wide usage in Space Vehicles and Aircraft applications. This product is rapidly becoming the industry standard.

#### Features:

- Very small and light in weight.
- Fully hermetic.
- Processed to meet space quality levels, CECC or military specifications.
- Fully hermetic.
- Space flight qualified.
- Same mounting footprint as the industry standard SOT23 package.
- Devices available in transistor configuration include:-

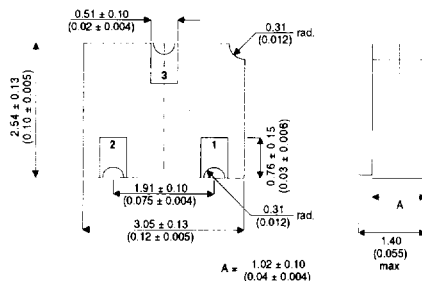
2N2222ACSM

2N2369ACSM

2N2907ACSM

2N918CSM

Plus many others, standard and custom specification.



**LCC1 Package**

### DUAL HERMETIC CERAMIC SURFACE MOUNT PACKAGE (LCC2)

The DCSM package is similar in concept to the SOT23CSM package – but accommodates two die, which allows excellent thermal tracking between the die.

With Similar Applications, products include:

2N2222ADCSM

2N2369ADCSM

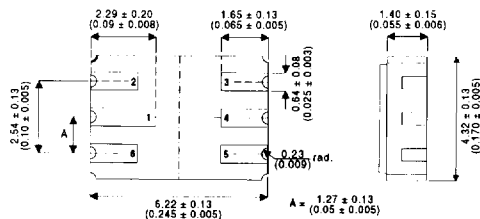
2N2907ADCSM

2N2060DCSM

2N2920DCSM

2N3810DCSM

Plus many others, standard and custom specification.



**LCC2 Package**



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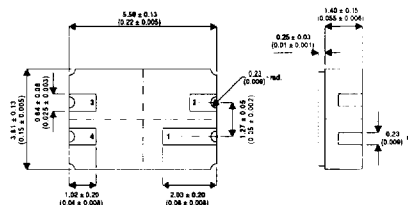
## HERMETIC SURFACE MOUNT PACKAGES

### LCC3 HERMETIC CERAMIC SURFACE MOUNT PACKAGE

This alternative to the LCC1 (SOT23CSM) package offers easier handling. The same die types, and slightly larger are accommodated in this package allowing the same range of products to be produced.

#### Features:

- Small and light in weight.
- Fully hermetic.
- Processed to meet space quality levels and CECC specifications.
- CECC approval pending.
- Product range as SOT23CSM (LCC1)



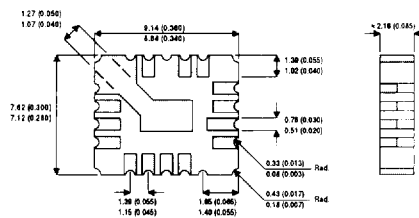
**LCC3 Package**

### LCC4 16/18 LEAD CERAMIC SURFACE MOUNT PACKAGE

Used as a package for medium power three terminal semiconductors, the LCC4 package offers hermetic surface mount products for space, military and high reliability applications for :

- 3 terminal voltage regulators
- Medium power bi-polar transistors up to 500 volts
- Medium power MOSFET – IRF and 4th Generation up to 500 volts
- Small Schottky barrier diodes

The LCC4 is very useful for low to medium levels of power dissipation. The TO220SM package handles higher powers, is larger and has much improved thermal performance



**LCC4 Package**



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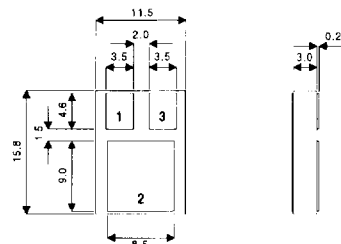
## HERMETIC SURFACE MOUNT PACKAGES

### TO-220 HERMETIC CERAMIC SURFACE MOUNT PACKAGE

The TO-220SM package has been designed to accommodate large power die and is suitable for use in both Military, Aerospace and safety critical systems.

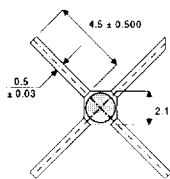
The package is offered in many configurations:

- Voltage Regulators, including LM117, LM137, LM7800, LM7900.
- Bi-polar power transistors, including BUL series, BUP series and many industry standards.
- MOSFET power products, such as 4<sup>TH</sup> Generation Power MOSFETs (SML series) and IRF types.
- Dual Schottky and fast recovery diodes, such as the BYV32 series and BYV34 series.
- Custom and standard types.

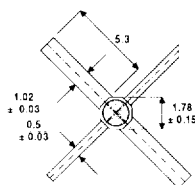


**TO-220SM Package**

## MX70 and MX85 MICRO X PACKAGES



**MX85 Package**



**MX70 Package**

SEMELAB offers two sizes of Micro X package to Military and Aerospace standards. Die types available mounted in these two packages cover all the popular bi-polar small signal types and several small signal MOSFETs.

**All products can be processed to space quality levels.**

**CECC approval pending on many types.**



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## HERMETIC SURFACE MOUNT PACKAGES

Example range of products in Ceramic Surface Mount Packages.

### SOT23CSM (Similar Types available in MX 70, MX 85 and LCC3) — LCC1

2N2221ACSM	2N3799CSM	BCW29CSM
2N2222ACSM	2N3904CSM	BCW30CSM
2N2222CSM	2N3962CSM	BCW31CSM
2N2368ACSM	2N3963CSM	BCW32CSM
2N2369ACSM	2N3964CSM	BCW33CSM
2N2369CSM	2N3965CSM	BCY58CSM
2N2484ACSM	2N918ACSM	BCY59CSM
2N2605CSM	2N930CSM	BCY70CSM
2N2857CSM	BAS16CSM	BCY71CSM
2N2894CSM	BAV70CSM	BCY72CSM
2N2906ACSM	BC107CSM	BFX48CSM
2N2907ACSM	BC108CSM	BFY64CSM
2N2907CSM	BC109CSM	BFY90CSM
2N3209CSM	BC477CSM	BSX20CSM
2N3250CSM	BC478CSM	Other standard transistor and small signal diode types available.
2N3486CSM	BC479CSM	Custom types also available.



### DUAL CERAMIC SURFACE MOUNT (DCSM) — LCC2

2N2060DCSM	2N2913DCSM	2N3352DCSM
2N2221ADCSM	2N2914DCSM	2N3410DCSM
2N2221DCSM	2N2915DCSM	2N3680DCSM
2N2222ADCSM	2N2916DCSM	2N3807DCSM
2N2222DCSM	2N2917DCSM	2N3808DCSM
2N2369ADCSM	2N2918DCSM	2N3809DCSM
2N2453DCSM	2N2919DCSM	2N3810DCSM
2N2639DCSM	2N2920DCSM	2N3904DCSM
2N2640DCSM	2N2979DCSM	2N4937DCSM
2N2641DCSM	2N3209DCSM	2N4938DCSM
2N2642DCSM	2N3250DCSM	BFX80DCSM
2N2643DCSM	2N3347DCSM	BFX81DCSM
2N2644DCSM	2N3348DCSM	BFY81DCSM
2N2894DCSM	2N3349DCSM	BFY82DCSM
2N2906ADCSM	2N3350DCSM	BFY84DCSM
2N2907ADCSM	2N3351DCSM	Other standard dual and custom matched types available.





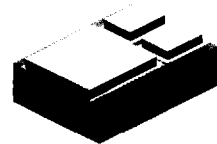
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**HERMETIC SURFACE MOUNT PACKAGES**

**TO-220 CERAMIC SURFACE MOUNT (TO-220SM)**

2N3055E-SM	BDS14-SM	BUY92-SM	LM7812-SM
2N3713-SM	BDS15-SM	BUZ50A-SM	LM7815-SM
2N3714-SM	BDS16-SM	BUZ50B-SM	LM7824-SM
2N3716-SM	BDS17-SM	BYV32-100ASM	LM7905-SM
2N3766-SM	BDS18-SM	BYV32-100RSM	LM7908-SM
2N3767-SM	BDS19-SM	BYV32-100SM	LM7910-SM
2N3789-SM	BDS20-SM	BYV32-150ASM	LM7912-SM
2N3790-SM	BDS21-SM	BYV32-150RSM	LM7915-SM
2N3791-SM	BFX34-SM	BYV32-150SM	LM7924-SM
2N3792-SM	BUL52A-SM	BYV32-200ASM	MJ2955-SM
2N3866-SM	BUL52B-SM	BYV32-200RSM	SML1002R4SM
2N3867-SM	BUL53A-SM	BYV32-200SM	SML1002R4SM
2N3868-SM	BUL53B-SM	BYV32-50ASM	SML1002RSM
2N3879-SM	BUL54A-SM	BYV32-50RSM	SML1004R2SM
2N3996-SM	BUL54B-SM	BYV32-50SM	SML1004RSM
2N3997-SM	BUL55A-SM	BYV34-300ASM	SML4030SM
2N3998-SM	BUL55B-SM	BYV34-300RSM	SML4040SM
2N3999-SM	BUL56A-SM	BYV34-300SM	SML4065SM
2N4910-SM	BUL56B-SM	BYV34-400ASM	SML4080SM
2N4911-SM	BUL57A-SM	BYV34-400RSM	SML501R1SM
2N4912-SM	BUL58B-SM	BYV34-400SM	SML5040SM
2N5000-SM	BUL59B-SM	BYV34-500ASM	SML5050SM
2N5001-SM	BUX47-SM	BYV34-500RSM	SML5085SM
2N5052-SM	BUX49-SM	BYV34-500SM	SML601R3SM
2N5153-SM	BUX50-SM	IRFN2xx series	SML601R6SM
2N5154-SM	BUX51-SM	IRFN3xx series	SML6060SM
2N5664-SM	BUX52-SM	IRFN4xx series	SML6070SM
2N5665-SM	BUX53-SM	IRFN5xx series	SML801R2SM
2N5666-SM	BUX54-SM	IRFN9xxx series	SML801R4SM
2N6661-SM	BUX55-SM	LM137-SM	SML802R4SM
BDS10-SM	BUX77-SM	LM117-SM	SML802R8SM
BDS11-SM	BUX78-SM	LM7805-SM	Other standard power transistors, diode and 3 terminal ICs available. Custom types also available.
BDS12-SM	BUY48-SM	LM7808-SM	
BDS13-SM	BUY90-SM	LM7810-SM	



Available to full requirements of CECC.  
Many types CECC pending.  
Available Space qualified.