Technical Data
Data Sheet N0700, Rev. A

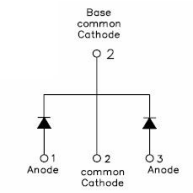
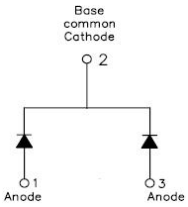
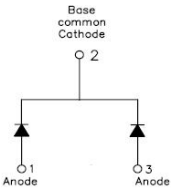
42CTQ030 /42CTQ030S /42CTQ030-1
SCHOTTKY RECTIFIER

Features

- 150°C T_J operation
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Terminals finish: Tin Lead-free plated
- This is a Pb − Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

42CTQ030	42CTQ030S	42CTQ030-1
		
		
TO-220AB	D^2PAK	TO-262

Maximum Ratings@T_C=25°C unless otherwise specified

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	-	30	V
Average Rectified Forward Current	$I_{F\ (AV)}$	50% duty cycle @Tc=121°C, rectangular wave form	20(Per Leg) 40(Per Device)	A
Peak One Cycle Non-Repetitive Surge Current(Per Leg)	I_{FSM}	8.3ms, Half Sine pulse	432	A

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop (Per Leg)*	V_{F1}	@ 20A, Pulse, T_J = 25 °C @ 40A, Pulse, T_J = 25 °C	0.47 0.57	0.50 0.59	V
	V_{F2}	@ 20A, Pulse, T_J = 125 °C @ 40A, Pulse, T_J = 125 °C	0.34 0.49	0.38 0.51	V
Reverse Current (Per Leg)*	I_{R1}	@V_R = rated V_R T_J = 25 °C	0.3	3	mA
	I_{R2}	@V_R = rated V_R T_J = 125 °C	120	183	mA
Junction Capacitance(Per Leg)	C_T	@V_R = 5V, T_C = 25 °C f_{SIG} = 1MHz	1330	2840	pF
Typical Series Inductance (per leg)	L_S	Measured lead to lead 5 mm from package body	8.0	-	nH
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications:

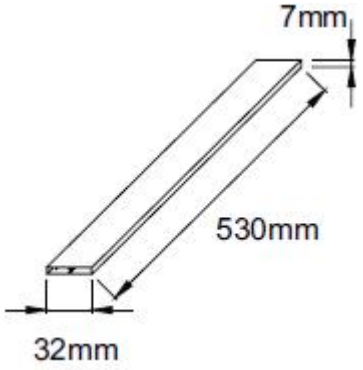
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T_J	-	-55 to +150	°C
Storage Temperature	T_{stg}	-	-55 to +150	°C
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	3.25	°C/W
Typical Thermal Resistance, Case to Heat Sink	$R_{\theta JS}$	DC operation	0.50	°C/W
Case Style	TO-220AB D^2PAK TO-262			

Tube Specification

Device	Package	Weight	Shipping
42CTQ030	TO-220AB	1.8g	50pcs / tube
42CTQ030S	D^2 PAK	1.85g	800pcs / reel
42CTQ030-1	TO-262	1.85g	50pcs / tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Tube Specification(TO-220AB/TO-262)



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Ratings and Characteristics Curves

Figure1 Typical Forward Characteristics

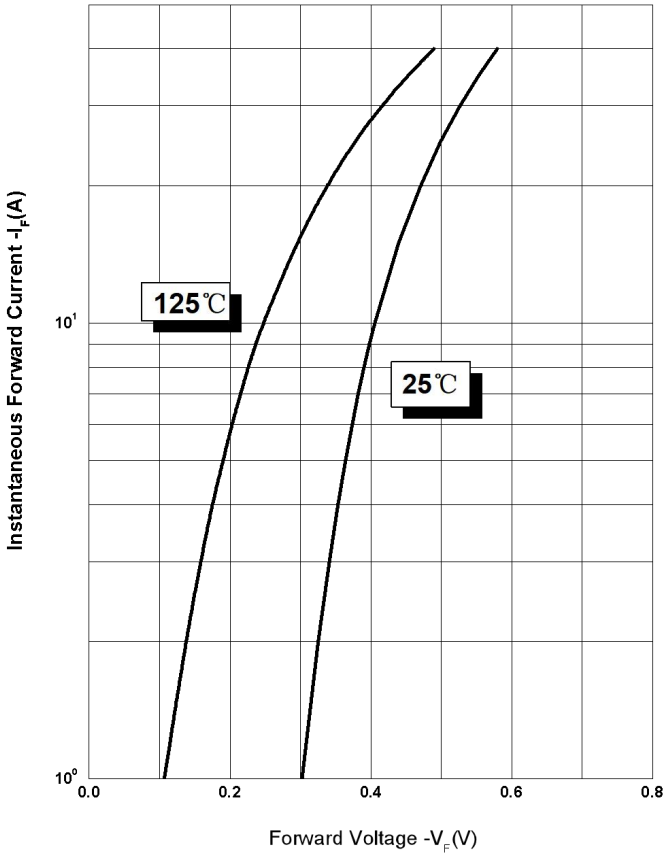


Figure 2 Typical Reverse Characteristics

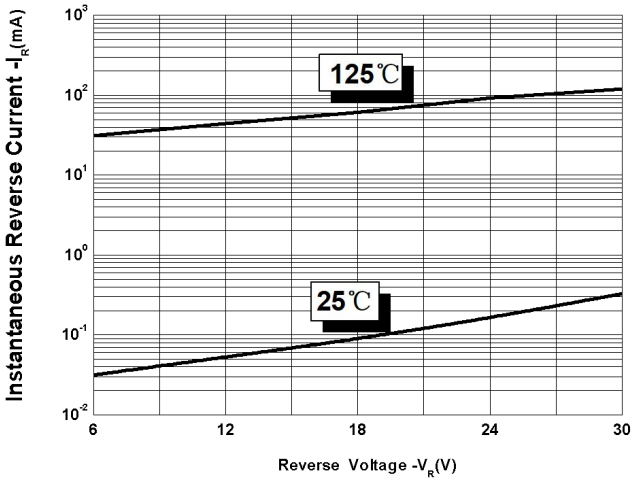
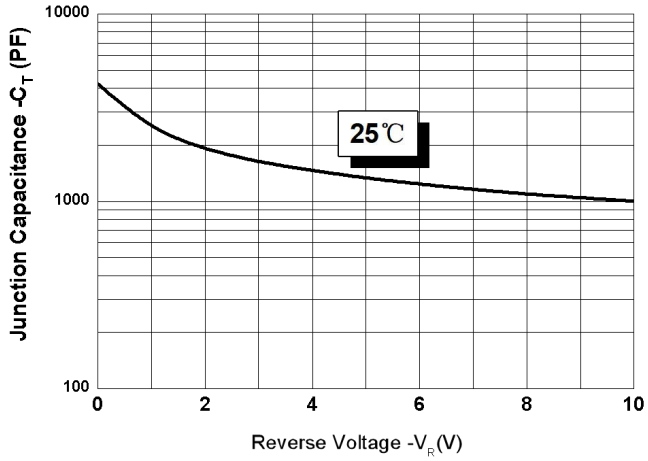


Figure 3 Typical Junction Capacitance



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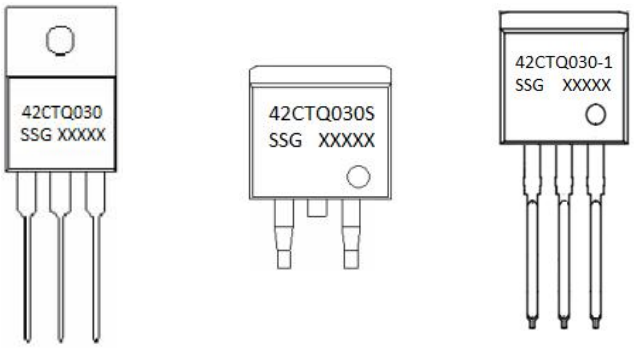
Marking Diagram

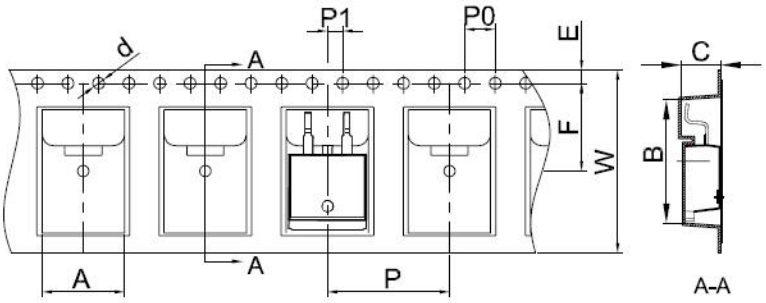


Where XXXXX is YYWWL

42	= Forward Current (40A)
C	= Configuration
TQ	= Device Type
30	= Reverse Voltage (30V)
S/-1	= Package type
SSG	= SSG
YY	= Year
WW	= Week
L	= Lot Number

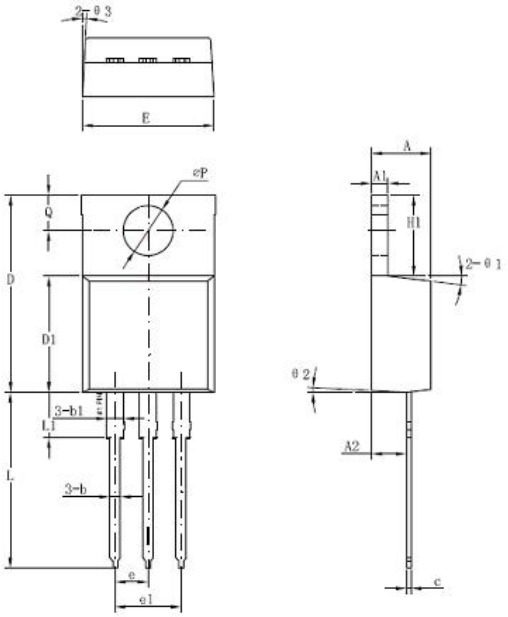
Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification D²PAK



Symbol	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

Mechanical Dimensions TO-220AB



Symbol	Dimensions in millimeters		
	Min	Typical	Max
A	3.56	-	4.83
A1	0.51	-	1.4
A2	2.03	-	2.92
b	0.38	-	1.02
b1	1.14	-	1.78
c	0.31	-	0.61
D	14.22	-	16.51
D1	8.38	-	9.42
E	9.65	-	10.67
e	-	2.54	-
e1	-	5.08	-
H1	5.84	-	6.86
L	12.7	-	14.73
L1	-	-	6.35
ΦP	-	3.56	-
Q	2.54	-	3.43

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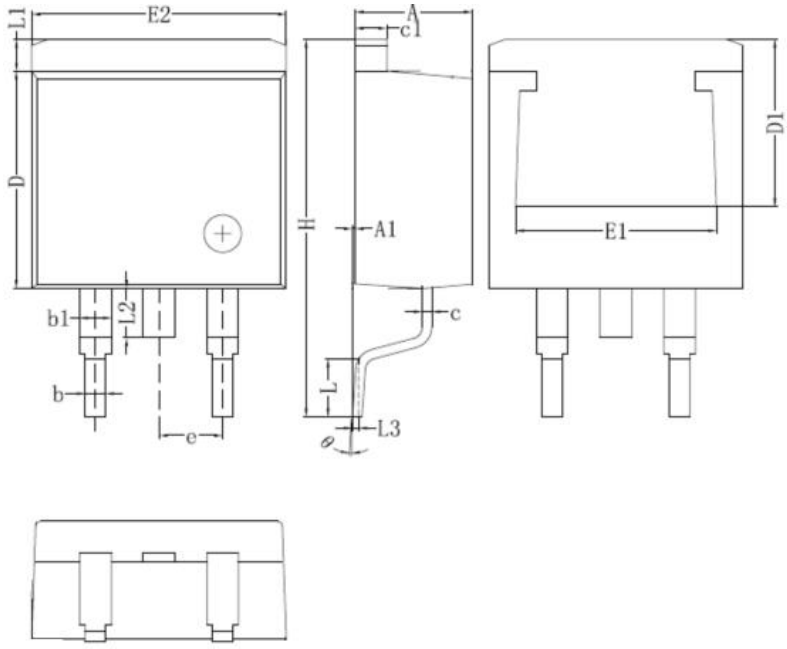
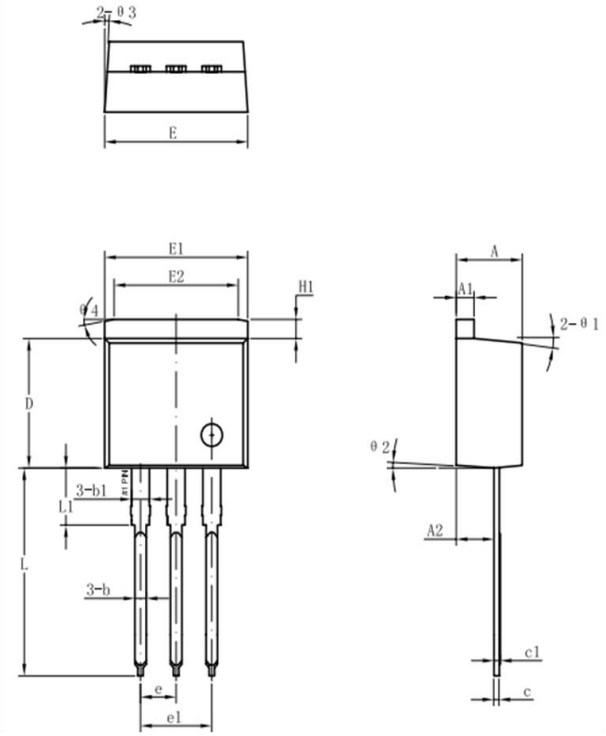
Mechanical Dimensions D²PAK



Symbol	Dimensions in millimeters	
	Min.	Max.
A	4.06	4.83
A1	0	0.26
b	0.51	0.99
b1	1.14	1.78
c	0.31	0.74
c1	1.14	1.65
D	8.38	9.65
D1	6.4	
E1	6.22	
E2	9.65	10.67
e	2.54BSC	
H	14.6	15.88
L	1.78	2.8
L1	-	1.68
L2	-	2.2
L3	0.255BSC	
Θ	0	8°

Mechanical Dimensions TO-262



Symbol	Millimeters		
	Min.	Typical	Max.
A	4.55	4.70	4.85
A1	1.17	1.27	1.37
A2	2.59	2.69	2.89
B	1.22	1.37	1.47
b	0.71	0.81	0.96
b1		1.27	
c	0.36	0.38	0.61
D	8.55	8.70	8.85
E	10.01	10.16	10.31
E1	9.88	10.08	10.28
e		2.54	
e1		5.08	
H1	1.17	1.27	1.37
L	13.00	13.86	14.08
L1		3.8	
Θ1		5°	
Θ2		4°	
Θ3		4°	
Θ4		10°	

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