



Technical Data  
Data Sheet N1066, Rev. -

*Green Products*

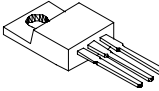
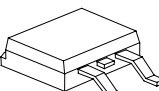
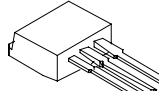
## 12CTQ.../12CTQ...S /12CTQ...-1 SCHOTTKY RECTIFIER

### Applications:

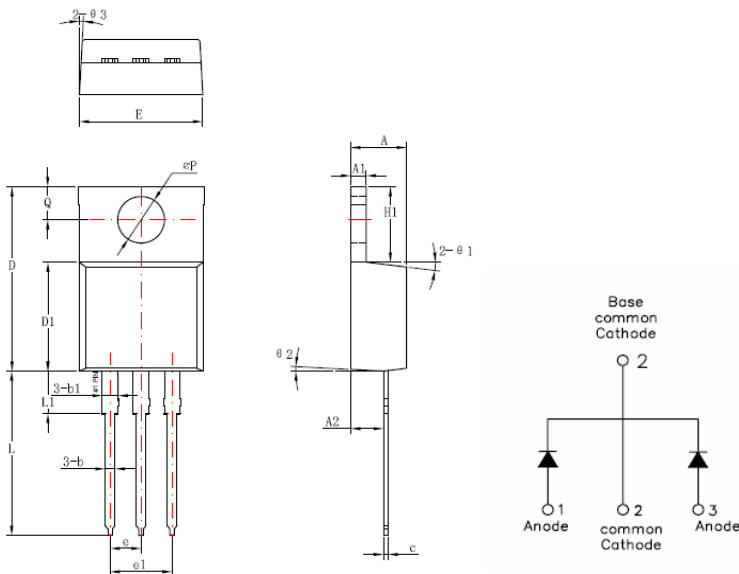
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

### Features:

- 175°C T<sub>J</sub> operation
- Center tap configuration
- 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
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

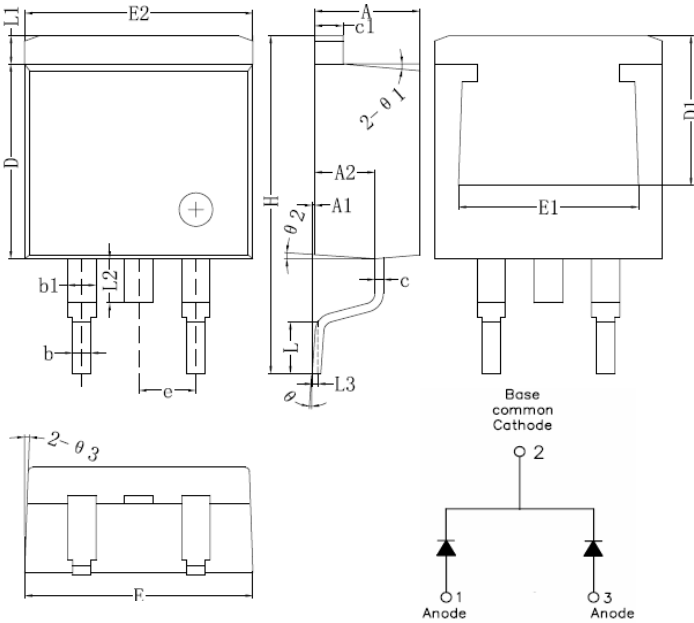
Case styles		
12CTQ...	12CTQ...S	12CTQ...-1
		
<b>TO-220AB</b>	<b>D<sup>2</sup>PAK</b>	<b>TO-262</b>

Mechanical Dimensions: In Inches / mm



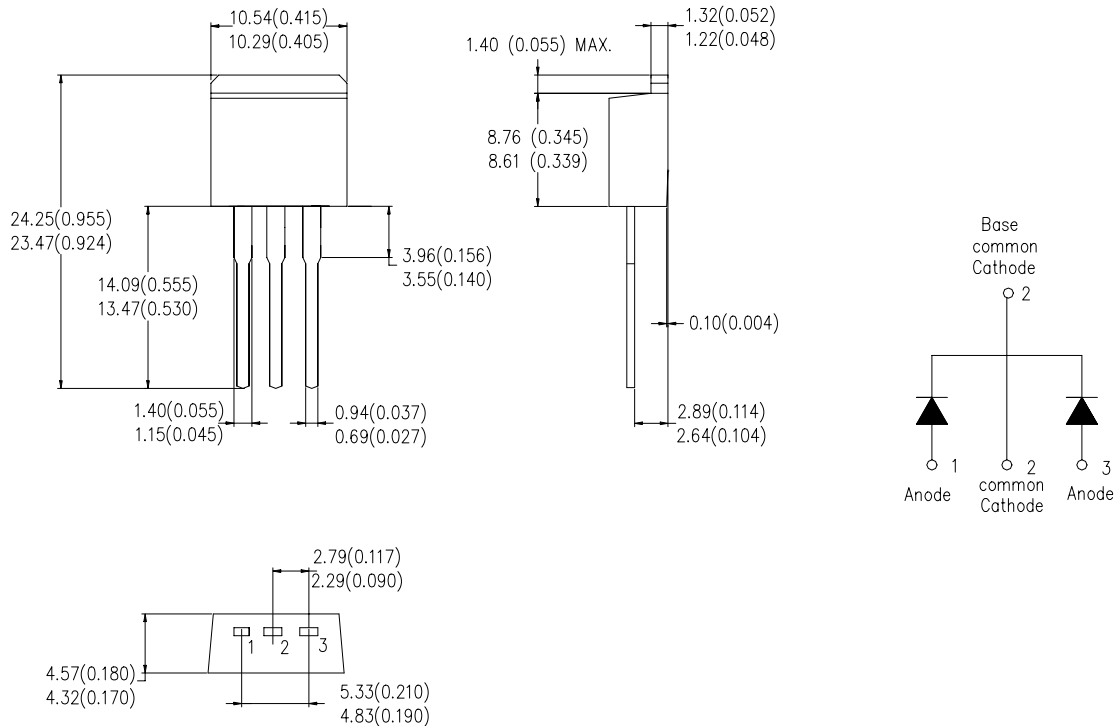
Symbol	Dimensions in millimeters		
	Min	Typical	Max
A	4.42	4.57	4.72
A1	1.17	1.27	1.37
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1		1.27	
c	0.36	0.38	0.61
D	14.94	15.24	15.54
D1	8.85	9.00	9.15
E	10.01	10.16	10.31
e		2.54	
e1		5.06	
H1	6.04	6.24	6.44
L	12.7	13.56	13.78
L1		3.5	
ΦP	3.74	3.84	4.04
Q	2.54	2.74	2.94
Θ1		7°	
Θ2		3°	
Θ3		4°	

### TO-220AB



**D<sup>2</sup>PAK**

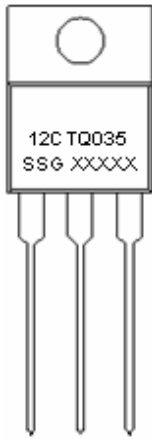
Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.55	4.70	4.85
A1	0	0.10	0.25
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1		1.27	
c	0.36	0.38	0.61
c1	1.17	1.27	1.37
D	8.55	8.70	8.85
D1	6.40		
E	10.01	10.16	10.31
E1	7.6		
E2	9.98	10.08	10.18
e		2.54	
H	14.6	15.1	15.6
L	2.00	2.30	2.70
L1	1.17	1.27	1.40
L2			2.20
L3		0.25BSC	
e	0	-	8°
e1		5°	
e2		4°	
e3		4°	



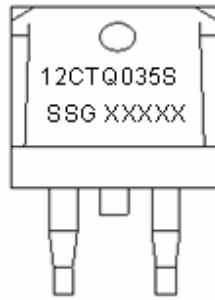
**TO-262**



**Marking Diagram:**



12CTQ035



12CTQ035S

Where XXXXX is YYWWL

12CTQ035 = Part Name  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

**Ordering Information:**

Device	Package	Shipping
12CTQ...	TO-220AB (Pb-Free)	50pcs / tube
12CTQ...S	D <sup>2</sup> PAK (Pb-Free)	800pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Maximum Ratings:**

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	$V_{RWM}$	-	35(12CTQ035) 40(12CTQ040) 45(12CTQ045)	V
Max. Average Forward	$I_{F(AV)}$	50% duty cycle @ $T_C=105^{\circ}C$ , rectangular wave form	6(per leg) 12(per device)	A
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	$I_{FSM}$	8.3 ms, half Sine pulse	160	A

### Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop *	$V_{F1}$	@ 6A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ @ 12A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.60 0.73	V
	$V_{F2}$	@ 6A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ @ 12A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.53 0.64	V
Max. Reverse Current at DC condition	$I_{R1}$	@ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^\circ\text{C}$	0.8	mA
Max. Reverse Current	$I_{R2}$	@ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^\circ\text{C}$	7.0	mA
Max. Junction Capacitance	$C_T$	@ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	400	pF
Typical Series Inductance	$L_S$	Measured lead to lead 5 mm from package body	8.0	nH
Max. Voltage Rate of Change(Rated $V_R$ )	dv/dt	-	10,000	V/ $\mu\text{s}$

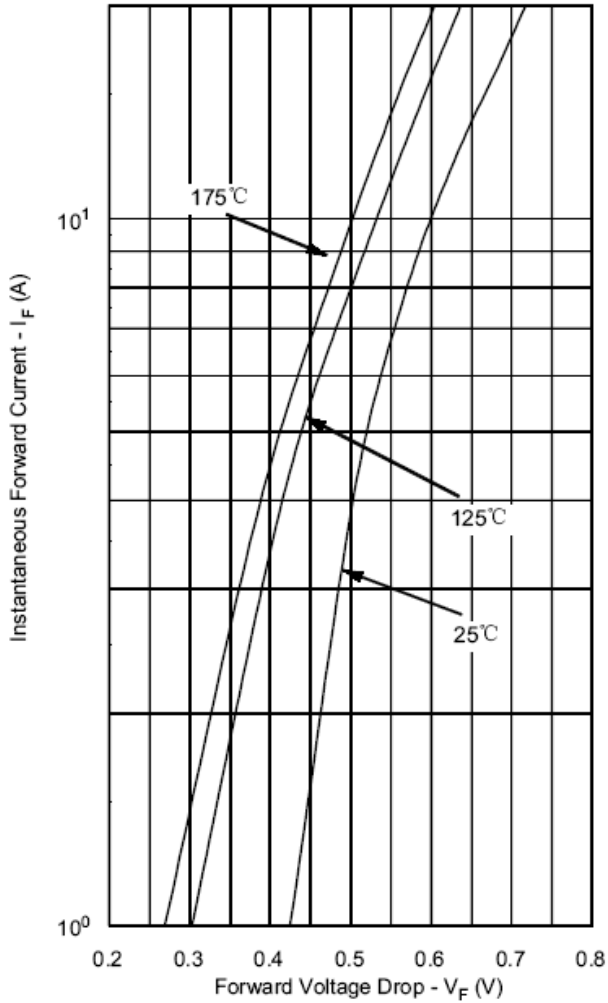
\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

### Thermal-Mechanical Specifications:

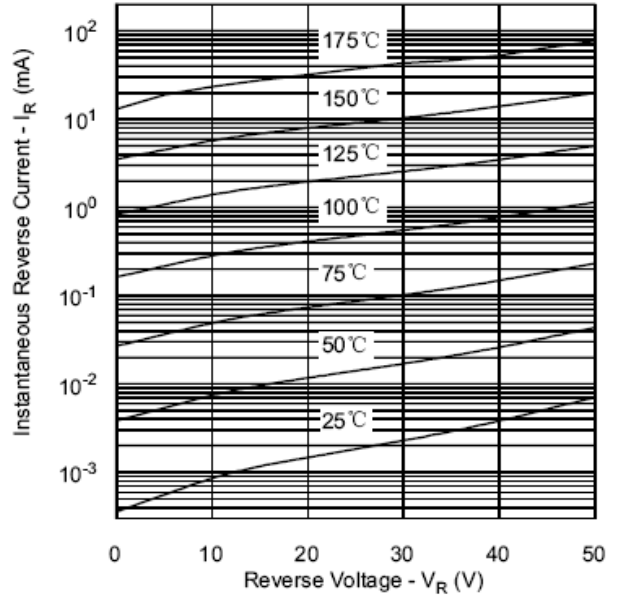
Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	$T_J$	-	-55 to +175	$^\circ\text{C}$
Max. Storage Temperature	$T_{stg}$	-	-55 to +175	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case (per leg)	$R_{\theta JC}$	DC operation	3.50	$^\circ\text{C/W}$
Typical Thermal Resistance, case to Heat Sink	$R_{\theta cs}$	Mounting surface, smooth and greased	0.50	$^\circ\text{C/W}$
Approximate Weight	wt	-	2/1.85	g
Case Style	TO-220AB,D <sup>2</sup> PAK,TO-262(Suffix“s”for D <sup>2</sup> PAK; Suffix“-1”for TO-262)			



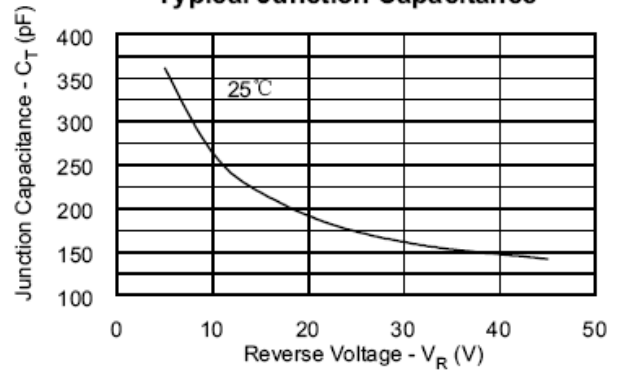
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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