

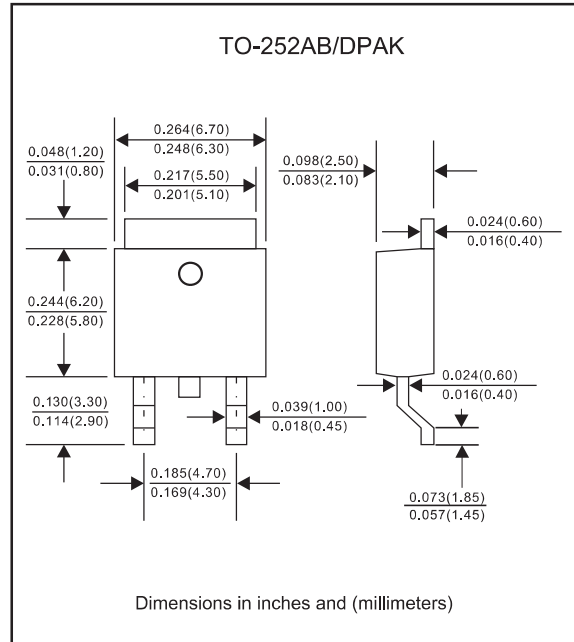
### Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, TO-252AB/DPAK
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

### Package outline



### Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	$I_O$			20.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	$I_{FSM}$			120	A
Reverse current	$V_R = V_{RRM}$ $T_J = 25^\circ\text{C}$	$I_R$			0.05	mA
	$V_R = V_{RRM}$ $T_J = 125^\circ\text{C}$				10	
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	$C_J$		560		pF
Storage temperature		$T_{STG}$	-65		+175	$^\circ\text{C}$

SYMBOLS	$V_{RRM}^{*1}$ (V)	$V_{RMS}^{*2}$ (V)	$V_R^{*3}$ (V)	$V_F^{*4}$ (V)	$V_F^{*5}$ (V)	Operating temperature $T_J$ , ( $^\circ\text{C}$ )
MBR2040CD-Q1	40	28	40	0.70	0.84	-55 to +150
MBR2045CD-Q1	45	31.5	45			
MBR2050CD-Q1	50	35	50	0.80	0.90	
MBR2060CD-Q1	60	42	60			
MBR2080CD-Q1	80	56	80	0.85	0.95	
MBR20100CD-Q1	100	70	100			
MBR20150CD-Q1	150	105	150	0.92	1.00	-55 to +175
MBR20200CD-Q1	200	140	200			

\*1 Repetitive peak reverse voltage

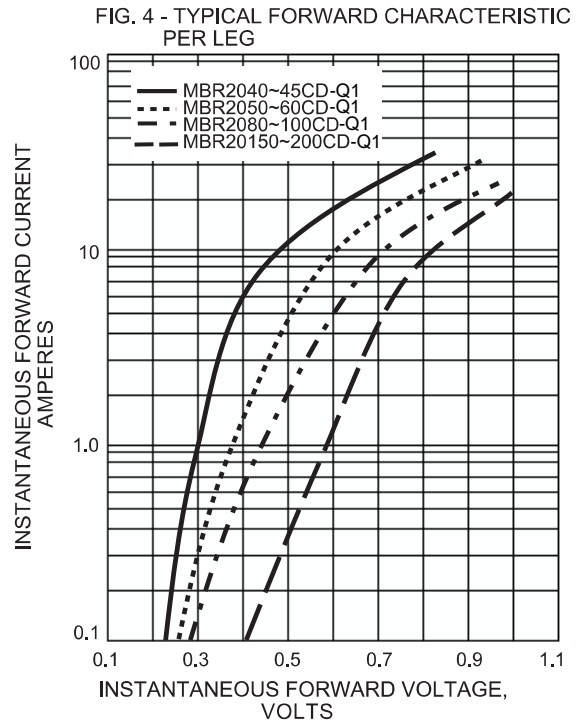
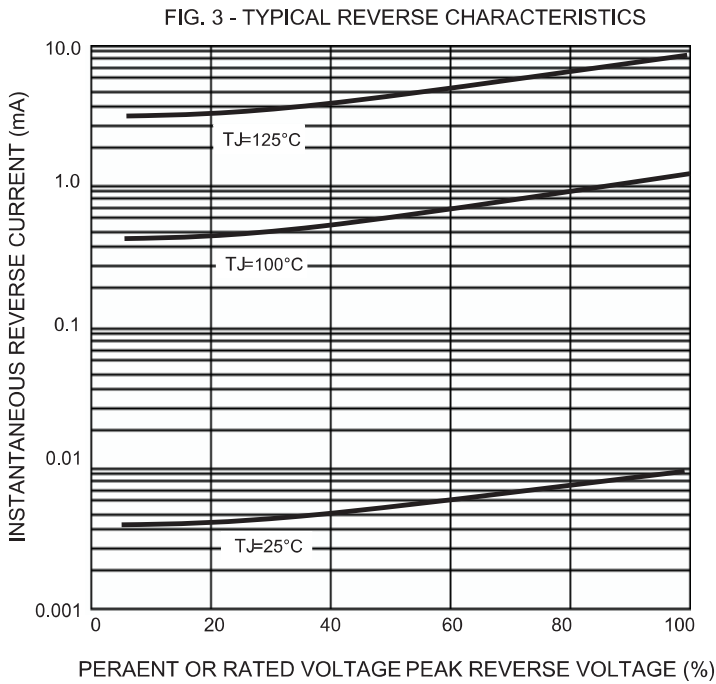
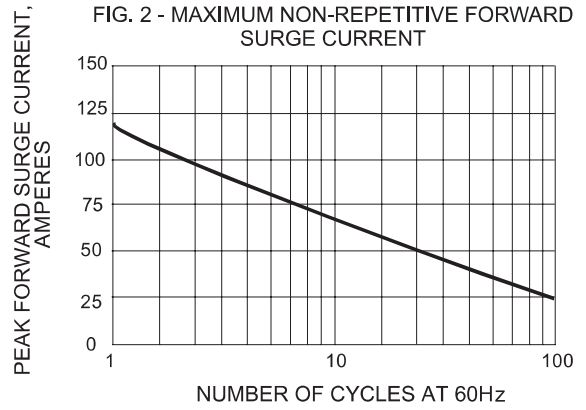
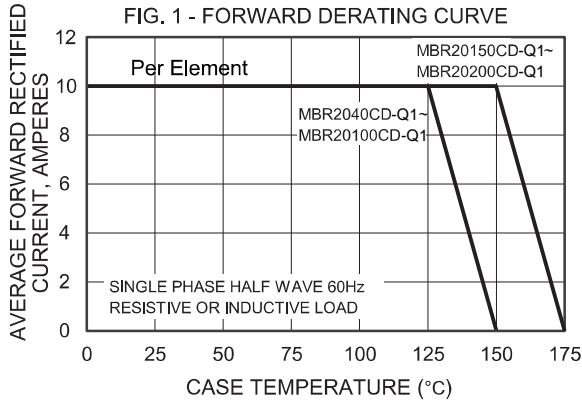
\*2 RMS voltage

\*3 Continuous reverse voltage

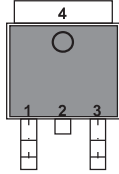
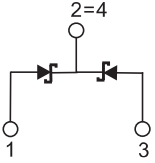
\*4 Maximum forward voltage  
 $I_F = 10.0\text{A}$ ,  $25^\circ\text{C}$

\*5 Maximum of forward voltage  
 $I_F = 20.0\text{A}$ ,  $25^\circ\text{C}$

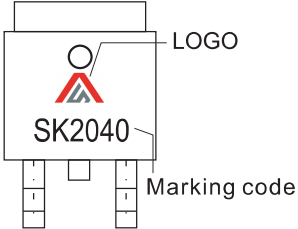
## Rating and characteristic curves



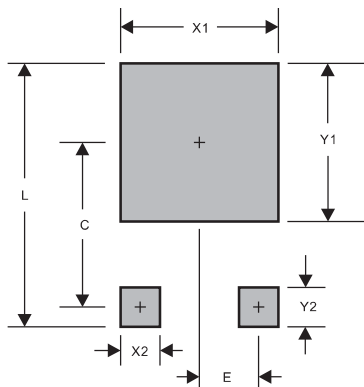
### Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2=4 cathode Pin3 anode		

### Marking

Type number	Marking code	Example
MBR2040CD-Q1	SK2040	
MBR2045CD-Q1	SK2045	
MBR2050CD-Q1	SK2050	
MBR2060CD-Q1	SK2060	
MBR2080CD-Q1	SK2080	
MBR20100CD-Q1	SK20100	
MBR20150CD-Q1	SK20150	
MBR20200CD-Q1	SK20200	

### Suggested solder pad layout



PACKAGE	DPAK
C	0.272(6.90)
E	0.091(2.30)
L	0.457(11.60)
X1	0.276(7.00)
X2	0.059(1.50)
Y1	0.276(7.00)
Y2	0.098(2.50)

Dimensions in inches and (millimeters)