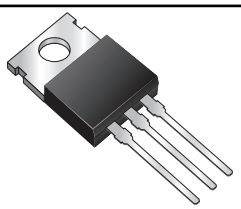
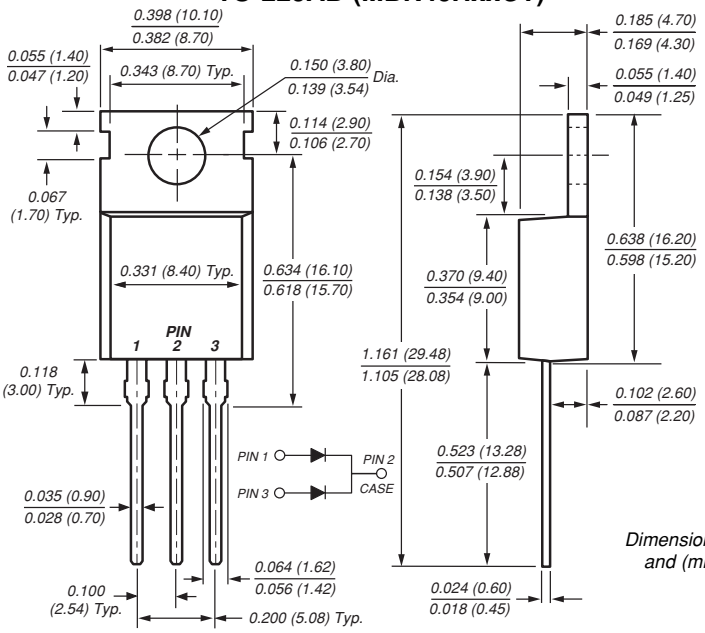
MBR40H35CT thru MBR40H60CT



TO-220AB (MBR40HxxCT)



Dimensions in inches and (millimeters)

Features

- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Guardring for overvoltage protection
- For use in high frequency inverters, free wheeling, and polarity protection applications

Mechanical Data

Case: JEDEC TO-220AB molded plastic body
Terminals: Plated leads, solderable per MIL-STD-750, Method 2026
High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case
Polarity: As marked
Mounting Position: Any
Mounting Torque: 10 in-lbs maximum
Weight: 0.08oz., 2.24g
Epoxy meets UL 94V-0 flammability rating

Maximum Ratings (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR40H 35CT	MBR40H 45CT	MBR40H 50CT	MBR40H 60CT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	50	60	V
Working peak reverse voltage	V_{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V_{DC}	35	45	50	60	V
Maximum average forward rectified current (see fig. 1) *Total device* / *Per leg*	$I_{F(AV)}$	40 / 20				A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load *Per leg*	I_{FSM}	350		320		A
Peak repetitive reverse current per leg at t_p = 2µs, 1KHz	I_{RRM}	1.0				A
Peak non-repetitive reverse surge energy (8/20µs waveform) *Per leg*	E_{RSM}	20				mJ
Non-repetitive avalanche energy at 25°C, I_{AS} = 3.0A, L=5mH *Per leg*	E_{AS}	22.5				mJ
Voltage rate of change (rated V_R)	dv/dt	10,000				V/µs
Operating junction and storage temperature range	T_J, T_{STG}	–65 to +175				°C

Electrical Characteristics (TC = 25°C unless otherwise noted)

Parameter		Symbol	MBR40H 35CT	MBR40H 40CT	MBR40H 50CT	MBR40H 60CT	Unit
Maximum repetitive peak reverse voltage		V_{RRM}	35	45	50	60	V
Working peak reverse voltage		V_{RWM}	35	45	50	60	V
Maximum DC blocking voltage		V_{DC}	35	45	50	60	V
Maximum instantaneous forward voltage per leg(1)	at I_F = 20A, T_J = 25°C	V_F	0.64		0.68		V
	at I_F = 20A, T_J = 125°C		0.55		0.60		
	at I_F = 40A, T_J = 25°C		0.76		0.83		
	at I_F = 40A, T_J = 125°C		0.70		0.73		
Maximum reverse current per leg at working peak reverse voltage (Note 1)	T_J = 25°C	I_R	100				μA
	T_J = 125°C		15				mA
Typical junction capacitance at 4.0V, 1MHz		C_J	1200		920		pF

Thermal Characteristics (TC = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Typical thermal resistance per leg	$R_{\theta JC}$	1.8	°C/W

Notes:
(1) Pulse test: 300μs pulse width, 1% duty cycle.

Ordering Information

Product	Case	Package Option	Package Code
MBR40H35CT - MBR40H60CT	TO-220AB	Anti-Static tube, 50/tube, 1K/carton	45

Fig. 1 – Forward Current Derating Curve

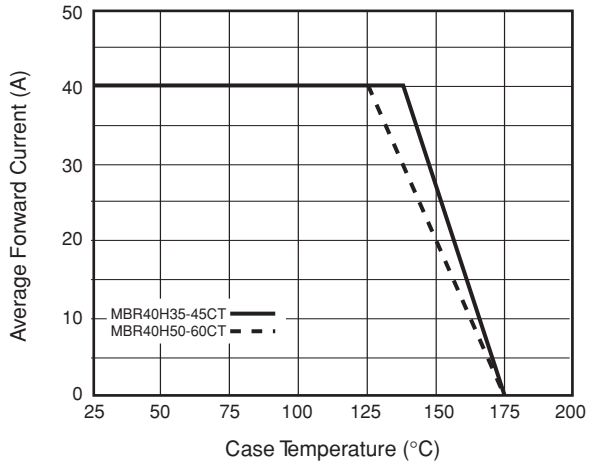


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg

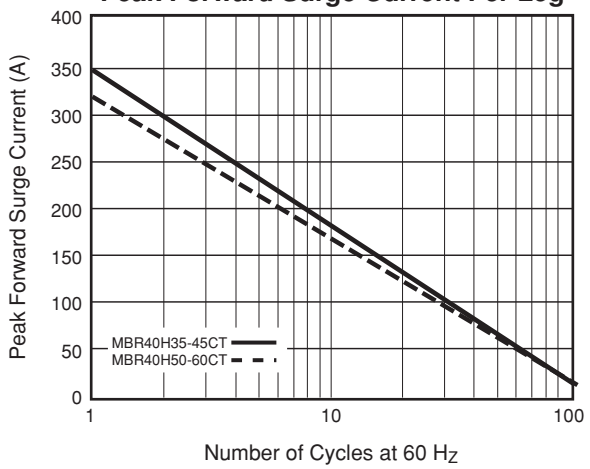


Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg

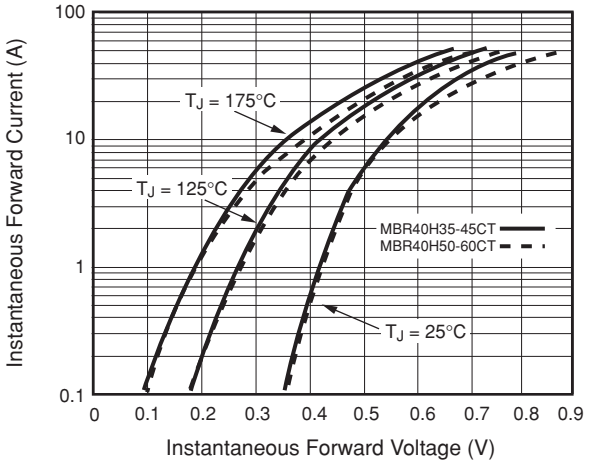


Fig. 4 – Typical Reverse Leakage Characteristics Per Leg

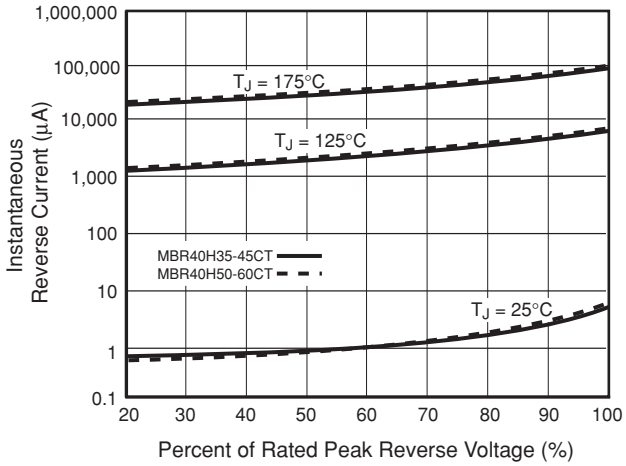


Fig. 5 – Typical Junction Capacitance Per Leg

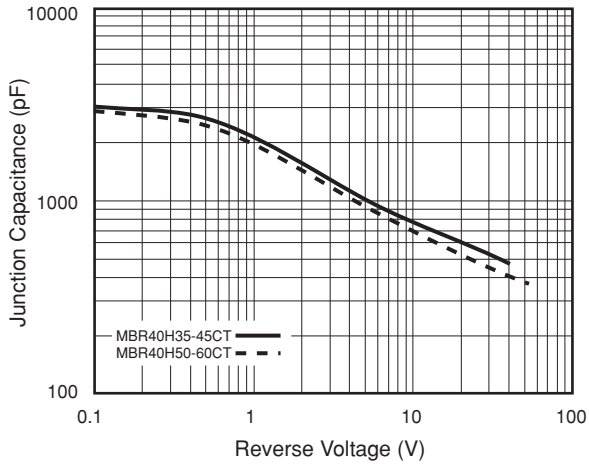


Fig. 6 – Typical Transient Thermal Impedance Per Leg

