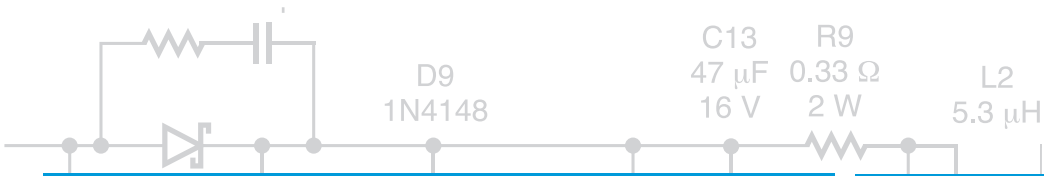


Innovation in power conversion



Product Selector Guide

Qspeed™ Diodes
Merged PIN-Schottky
Technology



600 V Lowest Switching Losses

Qspeed SiC replacement diodes (H-Series) have the same high-switching performance as expensive SiC diodes at >80 kHz using lower cost silicon technology. In addition, all H-Series diodes come in internally isolated packages which simplifies mounting.

QH12TZ600 / 900 - 1300 W

QH08TZ600 / 600 - 900 W

QH05TZ600 / 350 - 600 W

QH03TZ600 / 100 - 350 W

85-265 VAC

QH12TZ600 / 1000 - 1500 W

QH08TZ600 / 700 - 1000 W

QH05TZ600 / 450 - 700 W

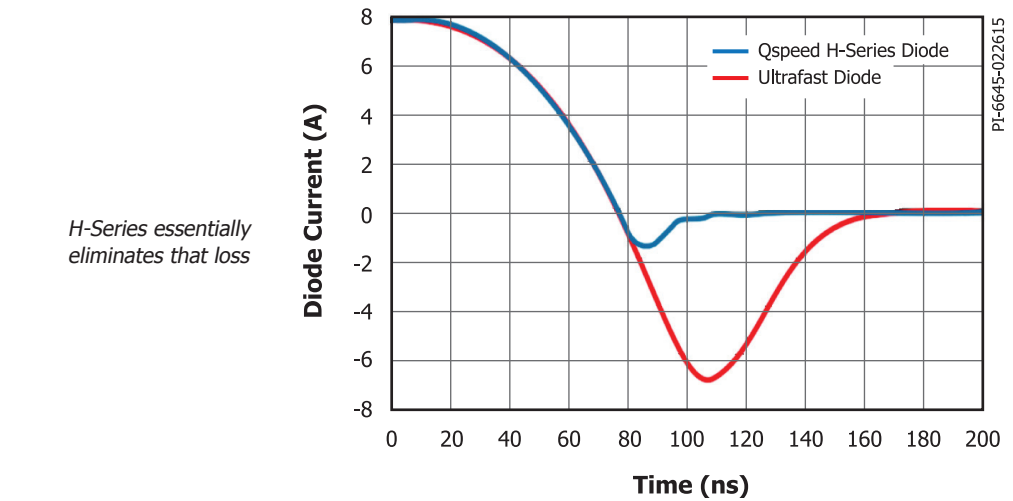
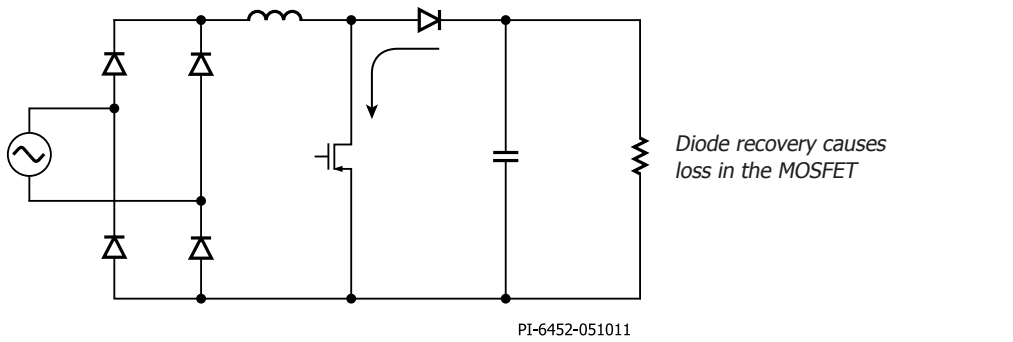
QH03TZ600 / 100 - 450 W

180-265 VAC

*For TO-263AB, use TO-220AC recommendations above.

600 V H-Series

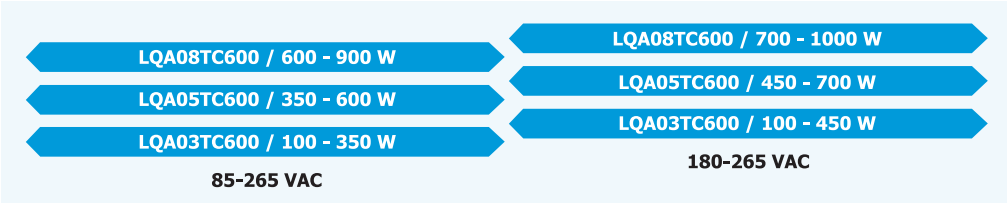
Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package (Isolated)
QH03TZ600	600 V	3 A	2.50 V	2.10 V	30 A	5.9 nC	14.9 nC	TO-220AC
QH03BZ600	600 V	3 A	2.50 V	2.10 V	30 A	5.9 nC	14.9 nC	TO-263AB
QH05TZ600	600 V	5 A	2.55 V	2.15 V	50 A	7.1 nC	19.4 nC	TO-220AC
QH05BZ600	600 V	5 A	2.55 V	2.15 V	50 A	7.1 nC	19.4 nC	TO-263AB
QH08TZ600	600 V	8 A	2.56 V	2.20 V	80 A	8.8 nC	26 nC	TO-220AC
QH08BZ600	600 V	8 A	2.56 V	2.20 V	80 A	8.8 nC	26 nC	TO-263AB
QH12TZ600	600 V	12 A	2.63 V	2.30 V	80 A	9.8 nC	30.5 nC	TO-220AC
QH12BZ600	600 V	12 A	2.63 V	2.30 V	80 A	9.8 nC	30.5 nC	TO-263AB



600 V High Softness Ratio

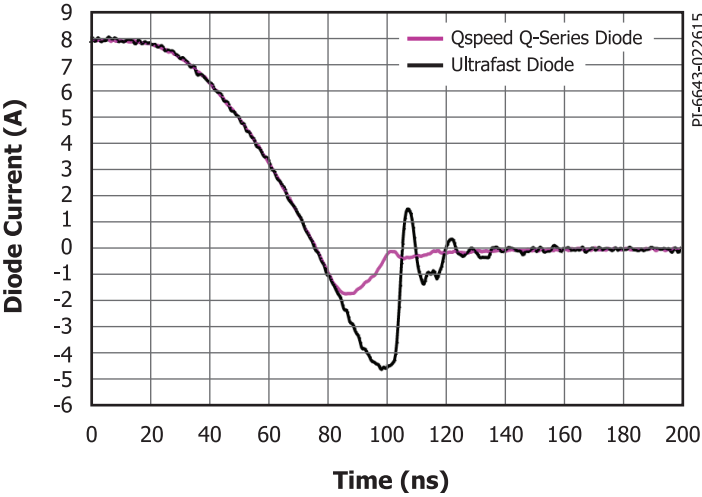
Q-Series diodes combine extremely low Q_{RR} with a very soft recovery waveform to deliver industry leading EMI performance. Softness, a measure of how “snappy” a diode’s recovery waveform is, along with the amplitude of the recovery currents, can have a large effect on both conducted and radiated EMI.

Like the H-Series diodes, Q-Series come in internally isolated packages allowing the device to be mounted directly to the heat sink without expensive isolation pads, shoulder washers, and other associated hardware.



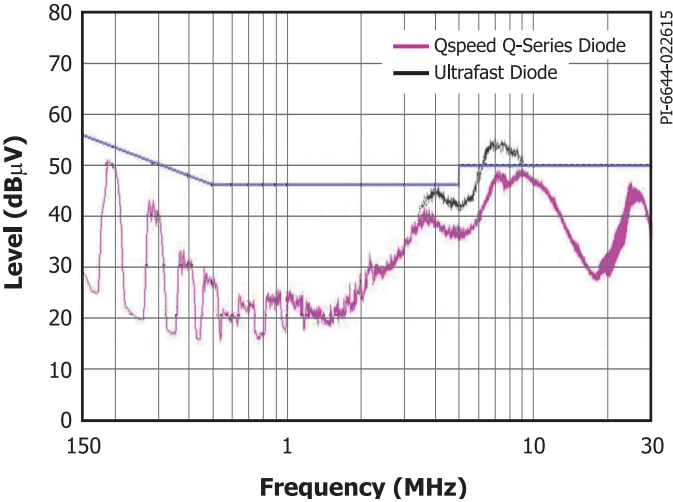
600 V Q-Series

Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package (Isolated)
LQA03TC600	600 V	3 A	2.77 V	2.3 V	30 A	5 nC	17.5 nC	TO-220AC
LQA05TC600	600 V	5 A	2.82 V	2.28 V	50 A	6 nC	27 nC	TO-220AC
LQA08TC600	600 V	8 A	2.85 V	2.3 V	80 A	7 nC	36 nC	TO-220AC



Compared to ultrafast diodes, Q-Series is lower recovery and much softer

Soft recovery means much lower EMI



Common Cathode X and Q-Series Diodes for Interleaved or Bridgeless Design to Reduce Space and Cost

Common Cathode Diodes

Diodes in a common cathode configuration allow designers to reduce costs while still achieving top performance. Just like the single diodes, these diodes have very low Q_{RR} reducing power loss in the boost MOSFET. By packaging two diodes together, the diodes are almost perfectly matched so they can also be used in parallel.

Cost-Effective Performance

Whether a design is at 100 W or 2800 W, the X-Series diodes are a cost-effective solution to increase performance. Use the selection guide below to find the most efficient diode for your application. For instance, at 600 W, the LXA06T600 (6 A) will typically have better performance than the competing 6 A or 8 A diodes.

LXA20T600 / 1600 - 2200 W	LXA20T600 / 2000 - 2800 W
LXA15T600 / 1200 - 1600 W	LXA15T600 / 1500 - 2000 W
LXA16T600C / LXA10T600 / 800 - 1200 W	LXA16T600C / LXA10T600 / 1000 - 1600 W
LXA12T600C / LXA08T600 / 500 - 900 W	LXA12T600C / LXA08T600 / 600 - 1200 W
LXA08T600C / LXA06T600 / 400 - 700 W	LXA08T600C / LXA06T600 / 400 - 900 W
LXA04T600 / 350 - 500 W	LXA04T600 / 450 - 600 W
LXA03T600 / 100 - 350 W	LXA03T600 / 100 - 450 W
85-265 VAC	180-265 VAC

*For TO-263AB, use TO-220AC recommendations above.

600 V X-Series

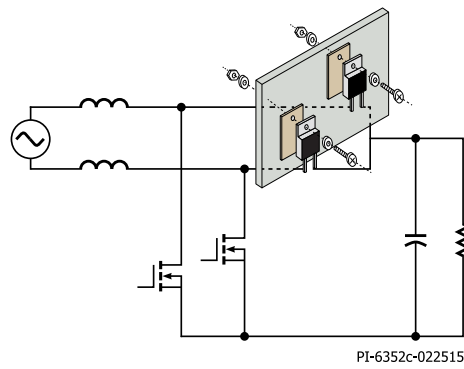
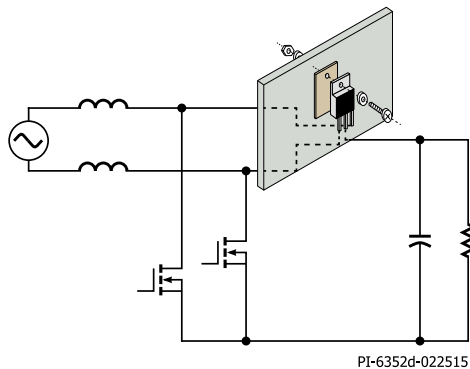
Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package
LXA03D530	530 V	3 A	1.55 V	1.33 V	25 A	39 nC	75 nC	SO-8C
LXA03T600	600 V	3 A	2.5 V	2.1 V	23 A	21 nC	43 nC	TO-220AC
LXA03B600	600 V	3 A	2.5 V	2.1 V	23 A	21 nC	43 nC	TO-263AB
LXA04T600	600 V	4 A	2.4 V	2.1 V	30 A	21 nC	50 nC	TO-220AC
LXA04B600	600 V	4 A	2.4 V	2.1 V	30 A	21 nC	50 nC	TO-263AB
LXA06T600	600 V	6 A	2.3 V	2.0 V	50 A	30 nC	71 nC	TO-220AC
LXA06B600	600 V	6 A	2.3 V	2.0 V	50 A	30 nC	71 nC	TO-263AB
LXA08T600	600 V	8 A	2.4 V	2.1 V	60 A	31 nC	82 nC	TO-220AC
LXA08B600	600 V	8 A	2.4 V	2.1 V	60 A	31 nC	82 nC	TO-263AB
LXA10T600	600 V	10 A	2.4 V	2.1 V	70 A	36 nC	94 nC	TO-220AC
LXA15T600	600 V	15 A	2.5 V	2.2 V	95 A	43 nC	120 nC	TO-220AC
LXA20T600	600 V	20 A	2.5 V	2.3 V	105 A	51 nC	140 nC	TO-220AC

600 V X-Series (Dual Diode)

Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package
LXA08T600C	600 V	4 A	2.4	2.1 V	30 A	21 nC	50 nC	TO-220AB
LXA12T600C	600 V	6 A	2.3	2.1 V	50 A	30 nC	71 nC	TO-220AB
LXA16T600C	600 V	8 A	2.4	2.1 V	60 A	31 nC	82 nC	TO-220AB

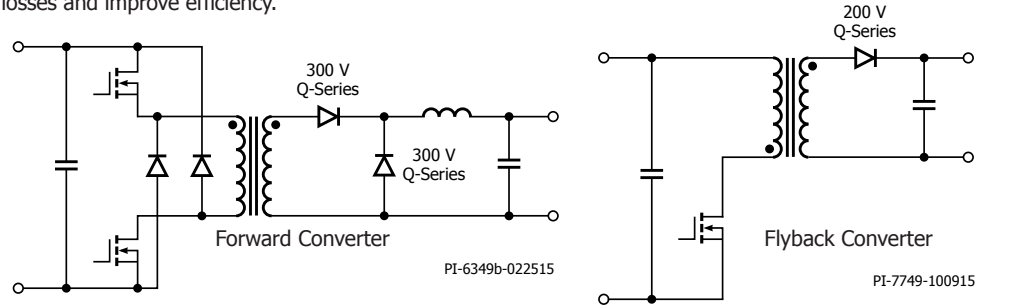
Reducing Manufacturing Costs

Placing one diode instead of two can dramatically lower costs through the elimination of mounting hardware and the reduction of labor time.



300 V, 200 V and 150 V Q-Series Ideal for High-Efficiency Output Rectifiers and Boost Diode Applications

The 300 V, 200 V and 150 V rated Q-Series offers lower forward voltage than the 600 V Qspeed diodes while maintaining the low reverse recovery charge and the soft recovery characteristic. This makes this diode ideal for output rectifier applications that require low switching losses, without the use of snubber circuit, reduced peak voltage stress in the diodes, lower MOSFET temperature, and improved EMI performance. This device is also used in DC input CCM boost applications as boost diodes to deliver low reverse recovery losses and improve efficiency.



300 V Q-Series (Single Diode)

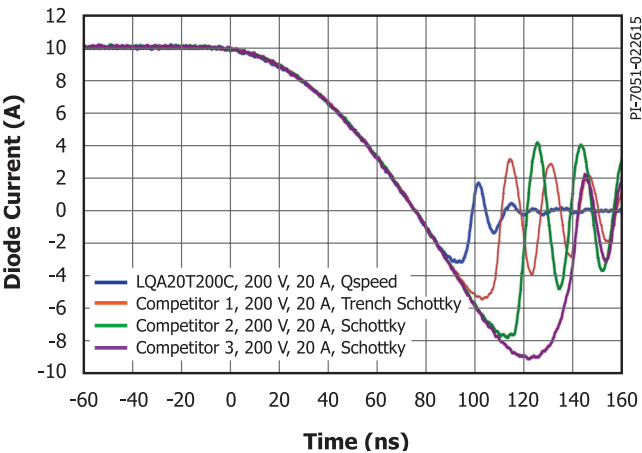
Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package
LQA06T300	300 V	6 A	1.60 V	1.34 V	37 A	9 nC	27 nC	TO-220AC
LQA10T300	300 V	10 A	1.58 V	1.36 V	80 A	10 nC	38 nC	TO-220AC
LQA16T300	300 V	16 A	1.60 V	1.40 V	100 A	12 nC	44 nC	TO-220AC
LQA30T300	300 V	30 A	1.66 V	1.45 V	200 A	13 nC	53 nC	TO-220AC

300 V Q-Series (Common Cathode)

Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package
LQA12T300C	300 V	6 A	1.60 V	1.34 V	37 A	8.5 nC	27 nC	TO-220AB
LQA20T300C	300 V	10 A	1.58 V	1.36 V	80 A	10 nC	38 nC	TO-220AB
LQA20B300C	300 V	10 A	1.58 V	1.36 V	80 A	10 nC	38 nC	TO-263AB
LQA30A300C	300 V	15 A	1.60 V	1.40 V	100 A	12 nC	47 nC	TO-247AD
LQA32T300C	300 V	16 A	1.60 V	1.40 V	100 A	12 nC	44 nC	TO-220AB
LQA60A300C	300 V	30 A	1.66 V	1.45 V	200 A	13 nC	53 nC	TO-247AD

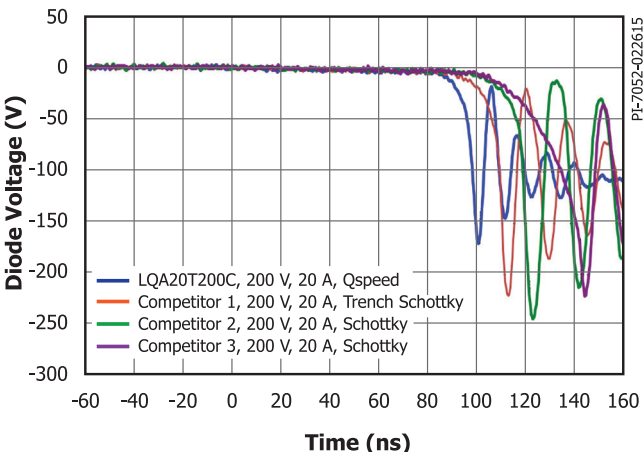
200 V Q-Series (Common Cathode)

Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150\text{ }^{\circ}\text{C}$	V_F $T_J=25\text{ }^{\circ}\text{C}$	V_F $T_J=150\text{ }^{\circ}\text{C}$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25\text{ }^{\circ}\text{C}$	Q_{RR} $T_J=125\text{ }^{\circ}\text{C}$	Package
LQA10T200C	200 V	5 A	0.95 V	0.8 V	60 A	15.6 nC	32.4 nC	TO-220AB
LQA10N200C	200 V	5 A	0.95 V	0.8 V	60 A	15.6 nC	32.4 nC	TO-252
LQA20T200C	200 V	10 A	0.98 V	0.85 V	100 A	20 nC	48.4 nC	TO-220AB
LQA20N200C	200 V	10 A	0.98 V	0.85 V	100 A	20 nC	48.4 nC	TO-252
LQA30T200C	200 V	15 A	0.98 V	0.86 V	130 A	21.5 nC	55.4 nC	TO-220AB
LQA30B200C	200 V	15 A	0.98 V	0.86 V	130 A	21.5 nC	55.4 nC	TO-263AB
LQA40T200C	200 V	20 A	1 V	0.875 V	170 A	22 nC	61 nC	TO-220AB
LQA40B200C	200 V	20 A	1 V	0.875 V	170 A	22 nC	61 nC	TO-263AB



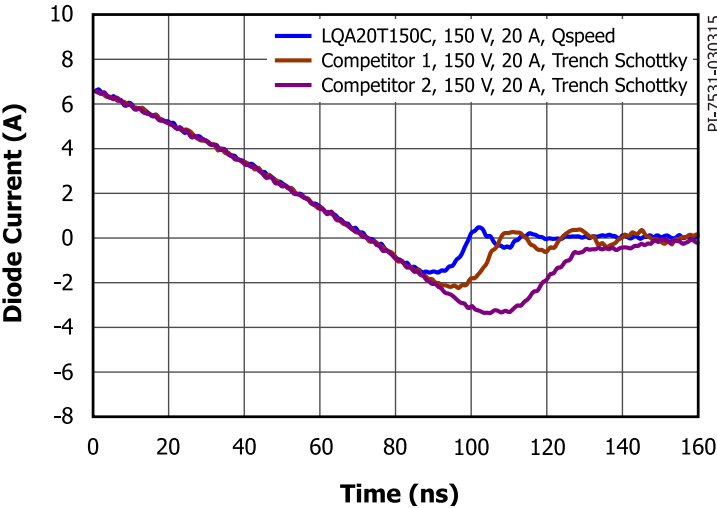
200 V Q-Series offers the lowest Q_{RR} that minimizes switching losses

200 V Q-Series soft switching characteristic minimizes the peak reverse voltage that reduces diode voltage stress and increases reliability



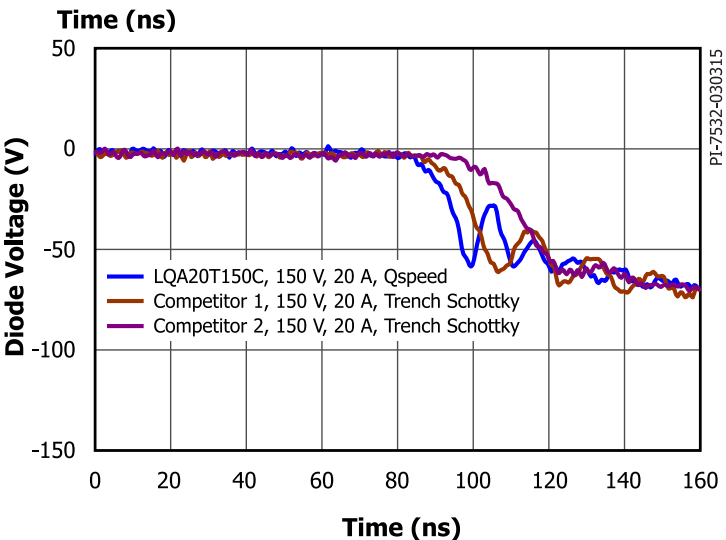
150 V Q-Series (Common Cathode)

Product	V_{RRM} MAX	$I_{F(AVG)}$ $T_J=150^{\circ}C$	V_F $T_J=25^{\circ}C$	V_F $T_J=150^{\circ}C$	I_{FSM} 8.3 ms	Q_{RR} $T_J=25^{\circ}C$	Q_{RR} $T_J=125^{\circ}C$	Package
LQA10T150C	150	5 A	0.95 V	0.8 V	60 A	8.6 nC	21.4 nC	TO-220AB
LQA10N150C	150	5 A	0.95 V	0.8 V	60 A	8.6 nC	21.4 nC	TO-252 DPAK
LQA20T150C	150	10 A	0.98 V	0.85 V	100 A	9.2 nC	27.8 nC	TO-220AB
LQA20N150C	150	10 A	0.98 V	0.85 V	100 A	9.2 nC	27.8 nC	TO-252 DPAK
LQA30T150C	150	15 A	0.98 V	0.86 V	130 A	10.3 nC	31.5 nC	TO-220AB
LQA30B150C	150	15 A	0.98 V	0.86 V	130 A	10.3 nC	31.5 nC	TO-263AB
LQA40T150C	150	20 A	1.0 V	0.875 V	170 A	10.4 nC	33.6 nC	TO-220AB
LQA40B150C	150	20 A	1.0 V	0.875 V	170 A	10.4 nC	33.6 nC	TO-263AB



150 V Q-Series offers the lowest Q_{RR} that minimizes switching losses

150 V Q-Series offers equivalent peak reverse voltage, while being the fastest switching diode



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