

**Features**

- 650-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on  $V_F$

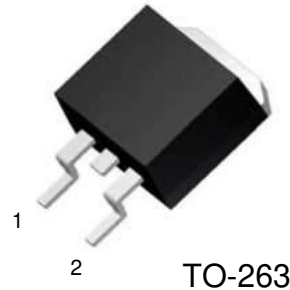
**Benefits**

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

**Applications**

- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Free Wheeling Diodes in Inverter stages
- AC/DC converters

**Package**



**Maximum Ratings** ( $T_C = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{RRM}$	Repetitive Peak Reverse Voltage	650	V		
$V_{RSM}$	Surge Peak Reverse Voltage	650	V		
$V_{DC}$	DC Blocking Voltage	650	V		
$I_F$	Continuous Forward Current	20 10 8	A	$T_C=25^\circ\text{C}$ $T_C=130^\circ\text{C}$ $T_C=140^\circ\text{C}$	Fig. 3
$I_{FRM}$	Repetitive Peak Forward Surge Current	36.5 25.5	A	$T_C=25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave $T_C=100^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave	
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	71 60	A	$T_C=25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave $T_C=100^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave	Fig. 8
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	650 530	A	$T_C=25^\circ\text{C}$ , $t_p = 10$ $\mu\text{s}$ , Pulse $T_C=100^\circ\text{C}$ , $t_p = 10$ $\mu\text{s}$ , Pulse	Fig. 8
$P_{tot}$	Power Dissipation	107 46.5	W	$T_C=25^\circ\text{C}$ $T_C=100^\circ\text{C}$	Fig. 4
dV/dt	Diode dV/dt ruggedness	200	V/ns	$V_R=0-650\text{V}$	
$\int i^2 dt$	$i^2t$ value	25 18	$\text{A}^2\text{s}$	$T_C=25^\circ\text{C}$ , $t_p=10$ ms $T_C=100^\circ\text{C}$ , $t_p=10$ ms	
$T_J, T_{stg}$	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		

**Electrical Characteristics**

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
$V_F$	Forward Voltage	1.5 2.1	1.8 2.4	V	$I_F = 8\text{ A } T_J = 25^\circ\text{C}$ $I_F = 8\text{ A } T_J = 175^\circ\text{C}$	Fig. 1
$I_R$	Reverse Current	8.5 17	42.5 170	$\mu\text{A}$	$V_R = 650\text{ V } T_J = 25^\circ\text{C}$ $V_R = 650\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
$Q_C$	Total Capacitive Charge	20		nC	$V_R = 400\text{ V}, I_F = 8\text{ A}$ $di/dt = 500\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$	Fig. 5
C	Total Capacitance	395 37 32		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 200\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 400\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	Fig. 6
$E_C$	Capacitance Stored Energy	3.0		$\mu\text{J}$	$V_R = 400\text{ V}$	Fig. 7

Note: This is a majority carrier diode, so there is no reverse recovery charge.

**Thermal Characteristics**

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.4	$^\circ\text{C}/\text{W}$	Fig. 9

**Typical Performance**

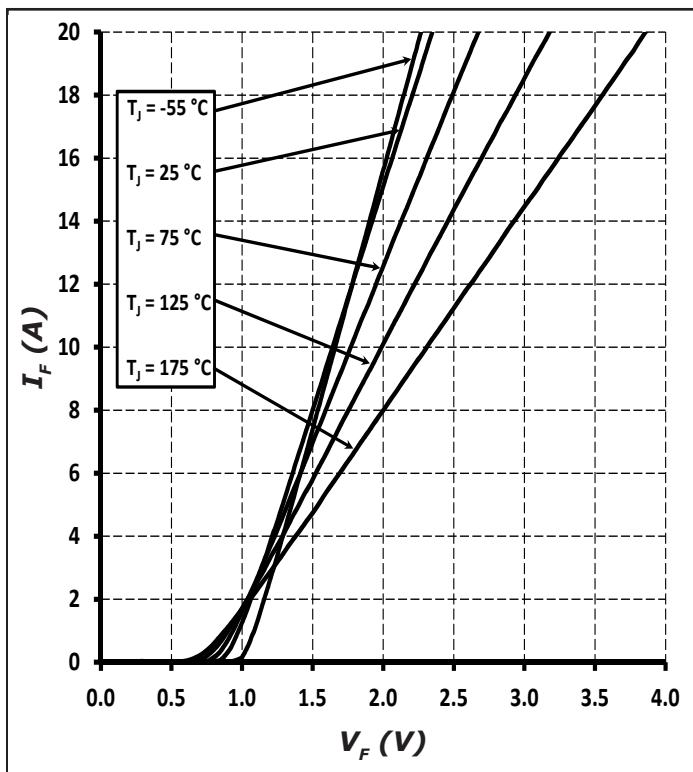


Figure 1. Forward Characteristics

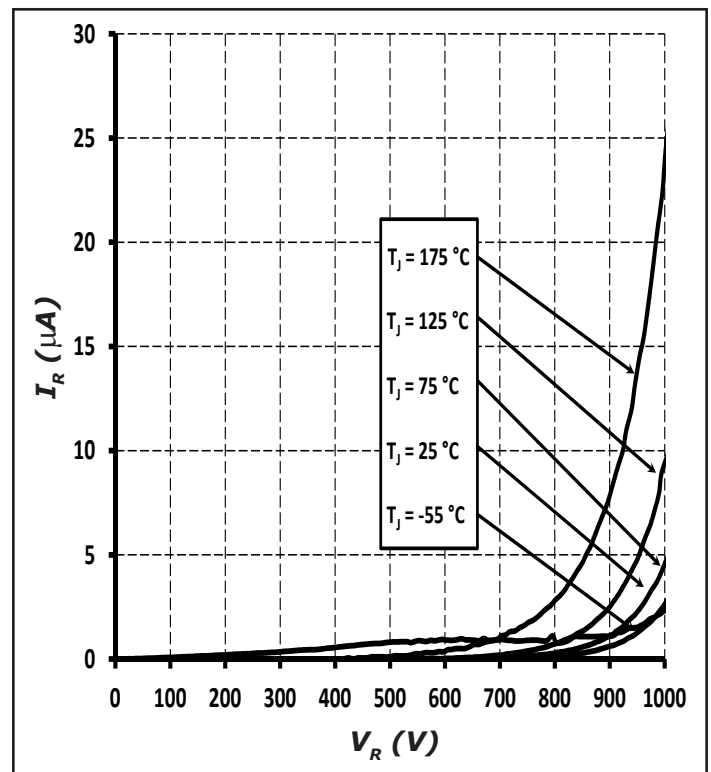


Figure 2. Reverse Characteristics

Typical Performance

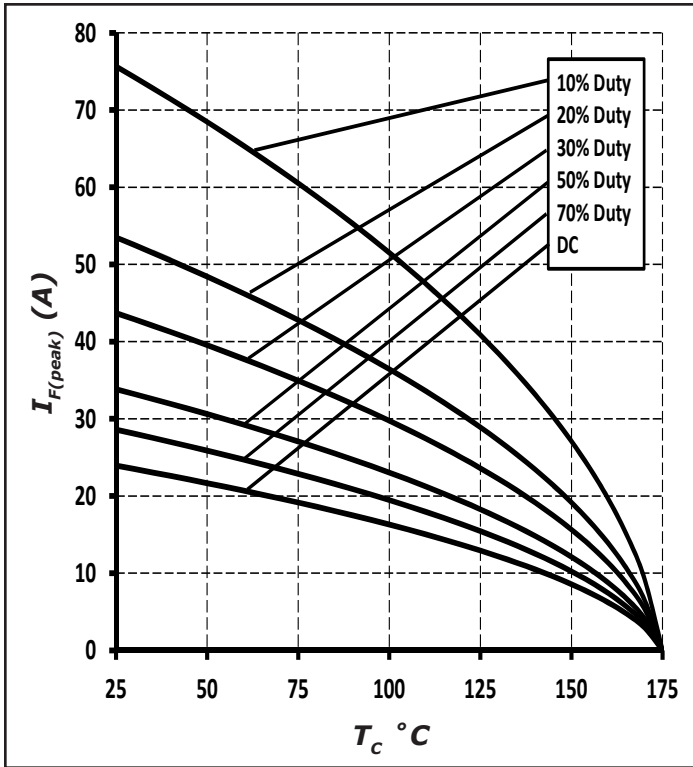


Figure 3. Current Derating

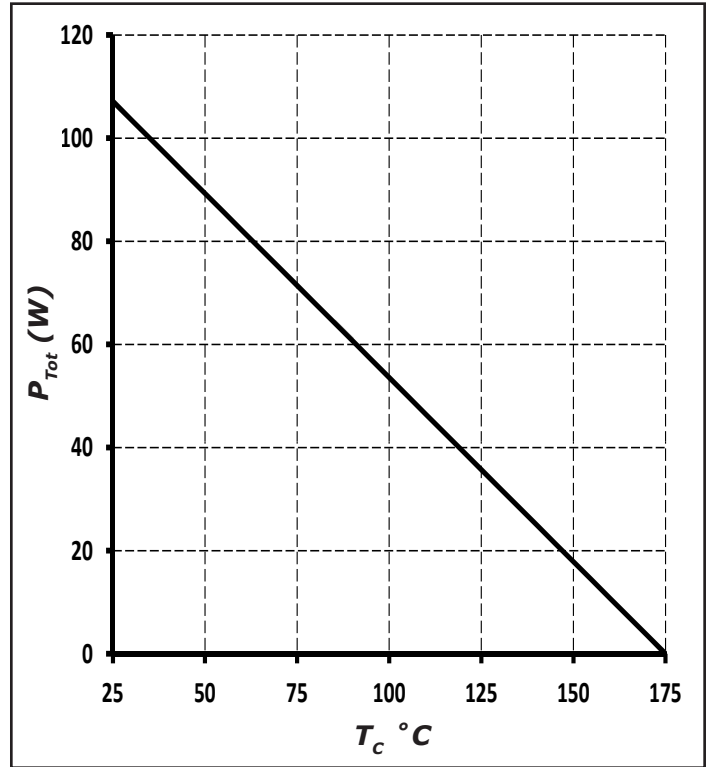


Figure 4. Power Derating

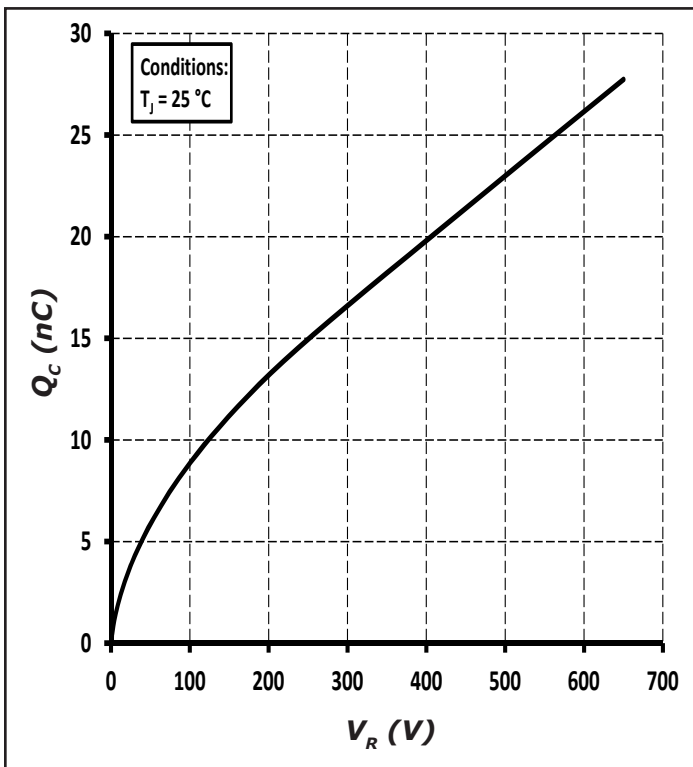


Figure 5. Total Capacitance Charge vs. Reverse Voltage

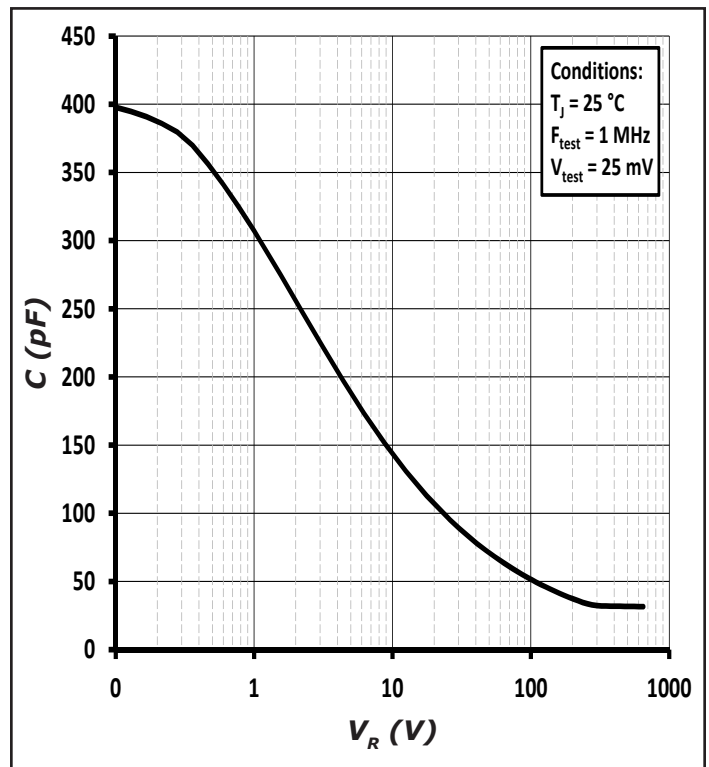


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance

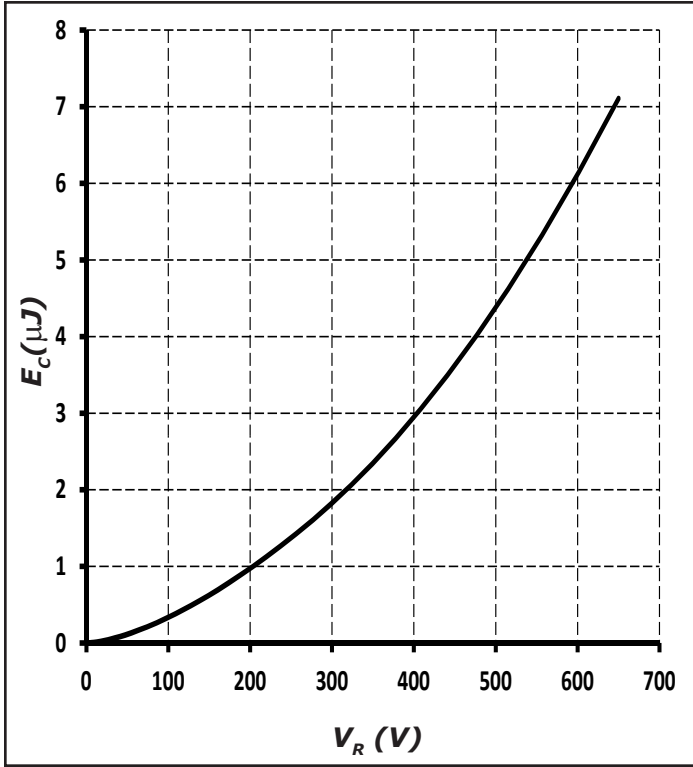


Figure 7. Capacitance Stored Energy

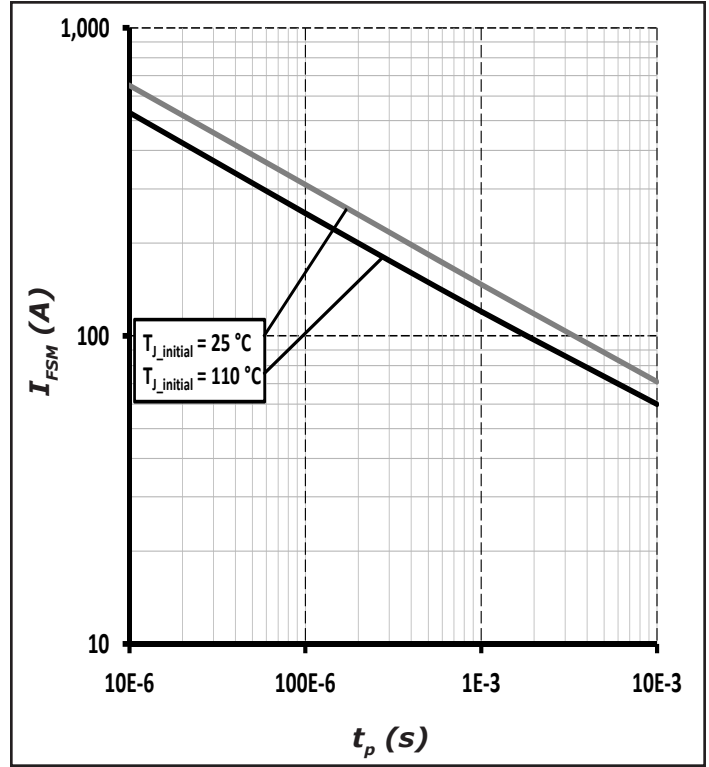


Figure 8. Non-repetitive peak forward surge current versus pulse duration (sinusoidal waveform)

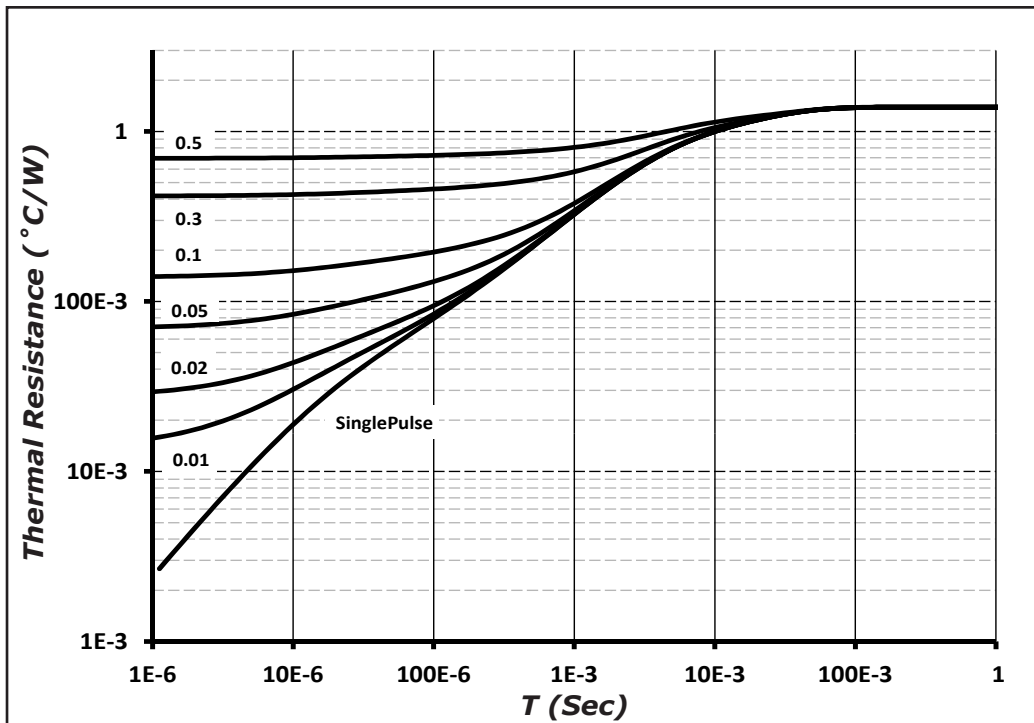
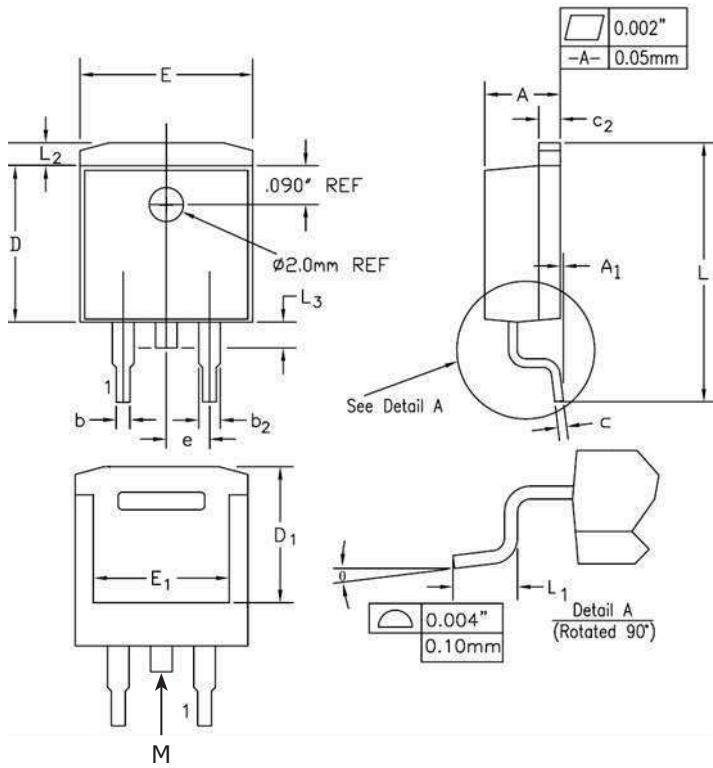


Figure 9. Transient Thermal Impedance

**Package Dimensions**

Package TO-263-2

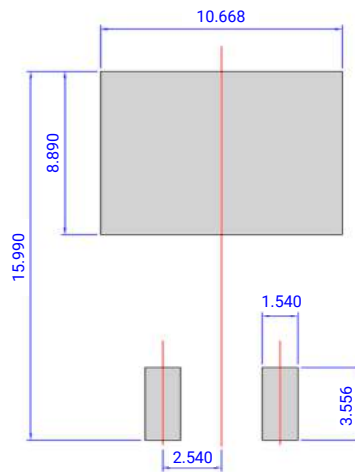


POS	Inches		Millimeters	
	Min	Max	Min	Max
A	0.17	0.18	4.32	4.57
A1	-	0.01	-	0.25
b	0.028	0.037	0.71	0.94
b2	0.045	0.055	1.15	1.4
c	0.014	0.025	0.356	0.635
c2	0.048	0.055	1.22	1.4
D	0.35	0.37	8.89	9.4
D1	0.255	0.324	6.48	8.23
E	0.395	0.405	10.04	10.28
E1	0.31	0.318	7.88	8.08
e	0.1	BSC.	2.54	BSC.
L	0.58	0.62	14.73	15.75
L1	0.09	0.11	2.29	2.79
L2	0.045	0.055	1.15	1.39
L3	0.05	0.07	1.27	1.77
θ	0°	8°	0°	8°

Note: Tab "M" may not be present



**Recommended Solder Pad Layout**



TO-263-2

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Schottky Diodes & Rectifiers](#) category:*

*Click to view products by [Tokmas](#) manufacturer:*

Other Similar products are found below :

[MA4E2039](#) [MA4E2508M-1112](#) [MBR10100CT-BP](#) [MBR1545CT](#) [MMBD301M3T5G](#) [GS1JE-TP](#) [RB160M-50TR](#) [BAS16E6433HTMA1](#)  
[BAS 3010S-02LRH E6327](#) [BAT 54-02LRH E6327](#) [NSR05F40QNXT5G](#) [NSVR05F40NXT5G](#) [NTE555](#) [JANS1N6640](#) [SB07-03C-TB-H](#)  
[SBS818-TL-E](#) [SK310-T](#) [SK33A-TP](#) [SK34B-TP](#) [SS3003CH-TL-E](#) [PDS3100Q-7](#) [GA01SHT18](#) [CRS10I30A\(TE85L,QM](#) [MA4E2501L-1290](#)  
[MBRB30H30CT-1G](#) [DMJ3940-000](#) [SB007-03C-TB-E](#) [SK32A-TP](#) [SK33B-TP](#) [SK35A-TP](#) [SK38B-LTP](#) [SK38B-TP](#) [NRVBM120LT1G](#)  
[NTE505](#) [NTSB30U100CT-1G](#) [SS0503SH-TL-E](#) [VS-6CWQ10FNHM3](#) [CRG04\(T5L,TEMQ\)](#) [ACDBA1100LR-HF](#) [ACDBA1200-HF](#)  
[ACDBA2100-HF](#) [ACDBA240-HF](#) [ACDBA3100-HF](#) [CDBQC0530L-HF](#) [ACDBA260LR-HF](#) [ACDBA1100-HF](#) [MA4E2502L-1246](#)  
[10BQ060-M3/5BT](#) [NRVB130LSFT1G](#) [CRS08TE85LQM](#)