

Table 1. Device summary

Symbol	Value
$I_{F(AV)}$	10 A
$V_{RRM}$	600 V
$t_{rr}$ (typ)	8 ns
$I_{RM}$ (typ)	2 A
$V_F$ (typ)	3.2 V
$I_{FRM}$	60 A
$T_j$ (max)	175 °C

## Features

- High voltage rectifier
- Very low switching losses
- Insulated device with internal ceramic
- Static and dynamic equilibrium of internal diodes are warranted by design

# 1 Characteristics

**Table 2. Absolute ratings (limiting values at  $T_j = 25\text{ °C}$ , unless otherwise specified)**

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	$T_j$ from 25 to 150 °C	600	V
		$T_j = -40\text{ °C}$	550	
$I_{F(RMS)}$	Forward rms current		16	A
$I_{F(AV)}$	Average forward current, $\delta = 0.5$ , square wave	$T_c = 140\text{ °}$	10	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ ms}$ sinusoidal	70	A
$I_{FRM}$	Repetitive peak forward current	$T_c = 90\text{ °C}$ , $\delta = 0.1$	50	A
$T_{stg}$	Storage temperature range		-65 to +175	°C
$T_j$	Operating junction temperature range		-40 to +175	°C

**Table 3. Thermal parameters**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	2.9	°C/W

**Table 4. Static electrical characteristics**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ °C}$	$V_R = V_{RRM}$	-	6	$\mu\text{A}$
		$T_j = 125\text{ °C}$		-	20	
$V_F^{(2)}$	Forward voltage drop	$T_j = 25\text{ °C}$	$I_F = 10\text{ A}$	-	3.2	V
		$T_j = 150\text{ °C}$		-	2.0	

1. Pulse test:  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$
2. Pulse test:  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

Table 5. Dynamic characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
$t_{rr}$	Reverse recovery time	$T_j = 25\text{ }^\circ\text{C}$	$I_F = 1\text{ A}, V_R = 30\text{ V},$ $di_F/dt = -50\text{ A}/\mu\text{s}$	-	8		ns
			$I_F = 10\text{ A}, V_R = 400\text{ V},$ $di_F/dt = -200\text{ A}/\mu\text{s}$	-	12		
$I_{RM}$	Reverse recovery current	$T_j = 125\text{ }^\circ\text{C}$	$I_F = 10\text{ A}, V_R = 400\text{ V},$ $di_F/dt = -200\text{ A}/\mu\text{s}$	-	2	2.6	A
S	Softness factor			-	0.9		-
$Q_{RR}$	Reverse recovery charge	$T_j = 25\text{ }^\circ\text{C}$	$di_F/dt = -200\text{ A}/\mu\text{s}$		5		nC
		$T_j = 125\text{ }^\circ\text{C}$		-	22		

Figure 1. Average forward power dissipation versus average forward current

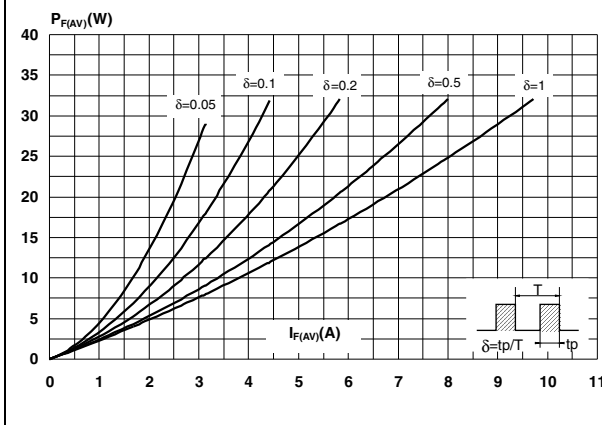


Figure 2. Forward voltage drop versus forward current (typical values)

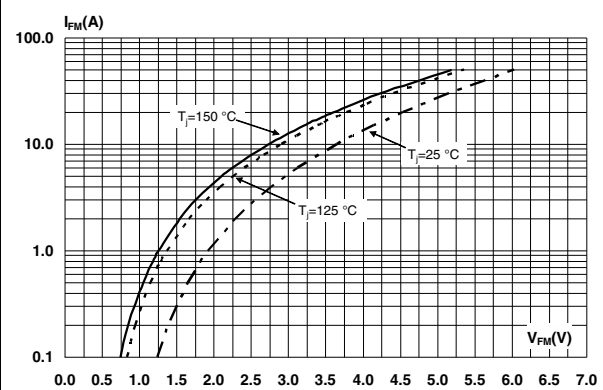


Figure 3. Relative variation of thermal impedance, junction to case, versus pulse duration

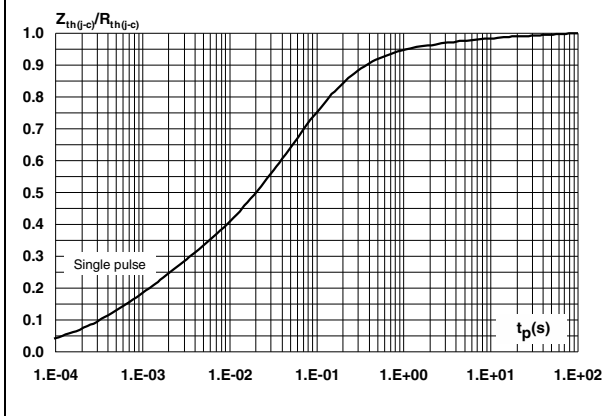
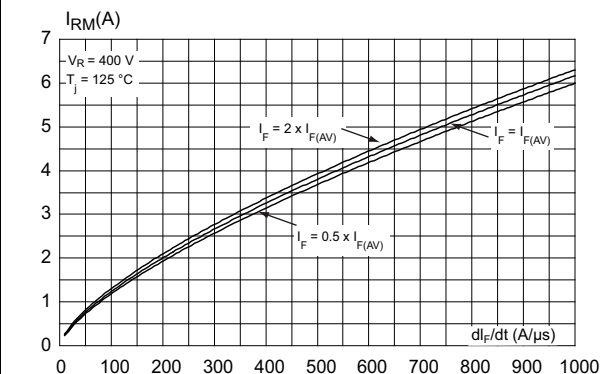
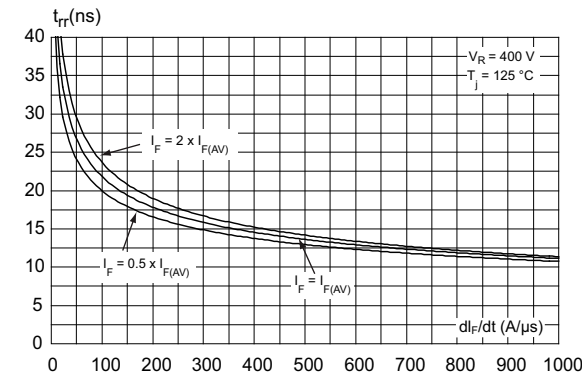


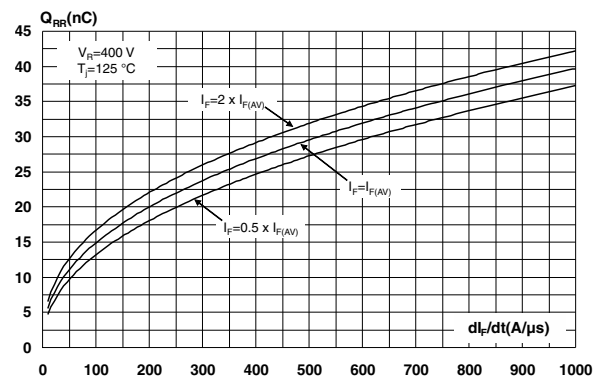
Figure 4. Peak reverse recovery current versus di\_F/dt (typical values)



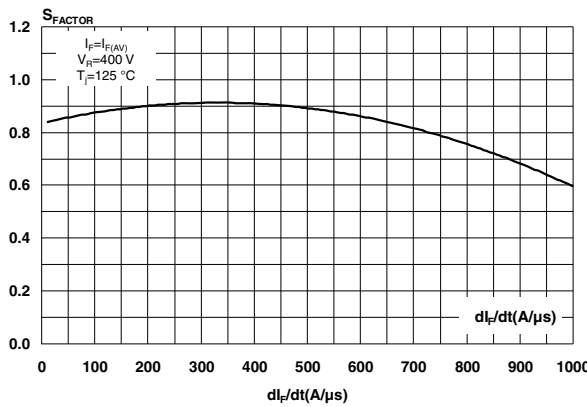
**Figure 5. Reverse recovery time versus  $di_F/dt$  (typical values)**



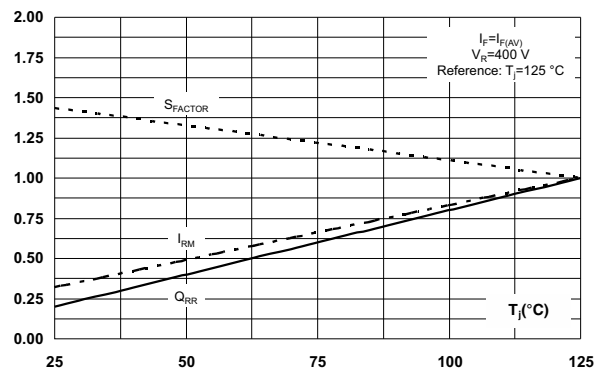
**Figure 6. Reverse recovery charges versus  $di_F/dt$  (typical values)**



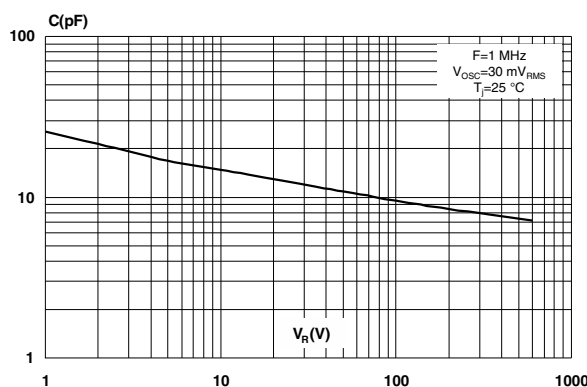
**Figure 7. Reverse recovery softness factor versus  $di_F/dt$  (typical values)**



**Figure 8. Relative variations of dynamic parameters versus junction temperature**



**Figure 9. Junction capacitance versus reverse voltage applied (typical values)**



**Figure 10. Relative variation of non-repetitive peak surge forward current versus pulse duration**

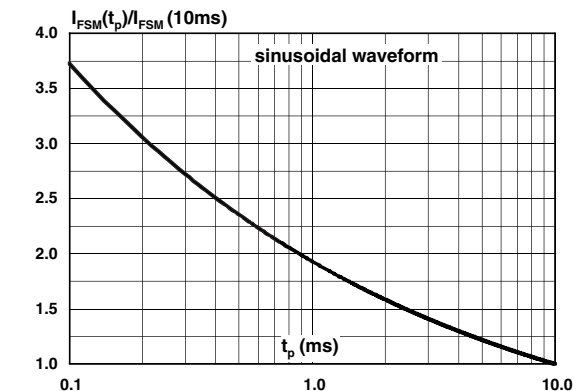
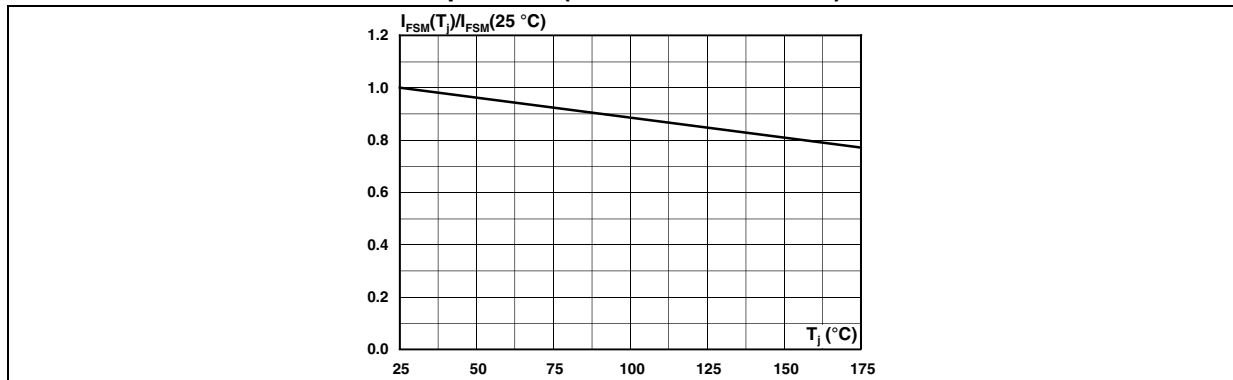
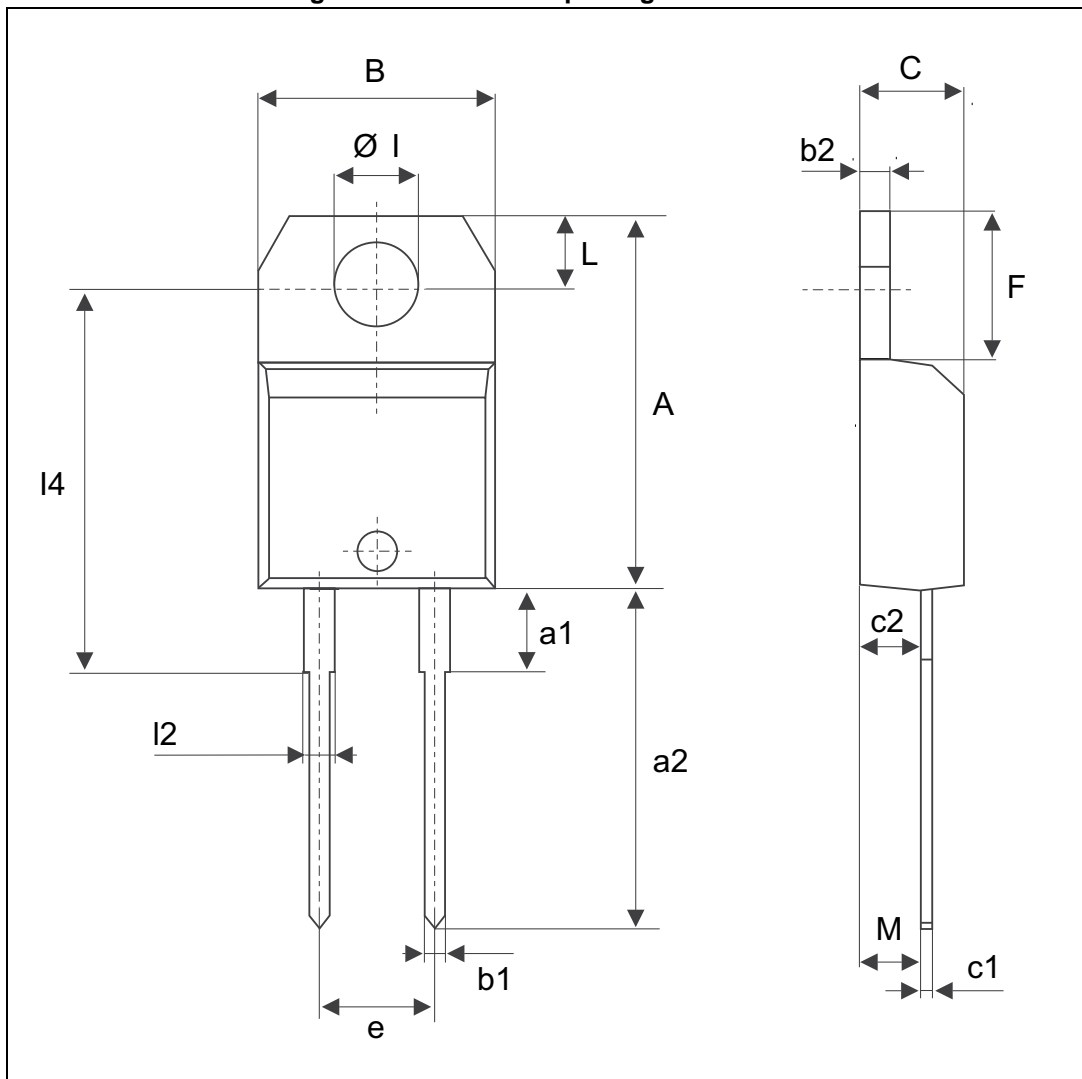


Figure 11. Relative variation of non-repetitive peak surge forward current versus initial junction temperature (sinusoidal waveform)



## 2.0 TO-220 ins. package information

Figure 12. TO-220 ins. package outline



**Table 6. T0-220 ins. package mechanical data**

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.20		15.90	0.598		0.625
a1		3.75			0.147	
a2	13.00		14.00	0.511		0.551
B	10.00		10.40	0.393		0.409
b1	0.61		0.88	0.024		0.034
b2	1.23		1.32	0.048		0.051
C	4.40		4.60	0.173		0.181
c1	0.49		0.70	0.019		0.027
c2	2.40		2.72	0.094		0.107
e	4.80		5.40	0.189		0.212
F	6.20		6.60	0.244		0.259
ØI	3.75		3.85	0.147		0.151
I4	15.80	16.40	16.80	0.622	0.646	0.661
L	2.65		2.95	0.104		0.116
I2	1.14		1.70	0.044		0.066
M		2.60			0.102	