

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_C = 90^\circ C$	12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_C = 90^\circ C$	7.6	A
I_{TSM}	Non repetitive surge peak on-state current (T_J initial = $25^\circ C$)	$t_p = 8.3 \text{ ms}$	132	A
		$t_p = 10 \text{ ms}$	120	
$I^2 t$	$I^2 t$ Value for fusing	$t_p = 10 \text{ ms}$	72	$A^2 s$
di/dt	Critical rate of rise of on-state current $I_G = 100 \text{ mA}$ $di_G/dt = 1 \text{ A}/\mu s$		100	$A/\mu s$
T_{stg} T_J	Storage and operating junction temperature range		- 40, +150 - 40, +125	$^\circ C$
T_l	Maximum lead temperature for soldering during 10s at 4.5 mm from case		260	$^\circ C$

Symbol	Parameter	Voltage				Unit
		B	D	M	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_J = 125^\circ C$	200	400	600	800	V

S12xxxH

THERMAL RESISTANCES

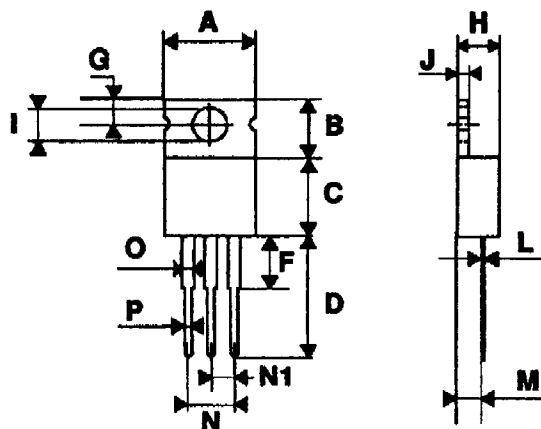
Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient	60	$^\circ C/W$
$R_{th(j-c)}$	Junction to case for DC	3	$^\circ C/W$

GATE CHARACTERISTICS (maximum values)

$P_G(AV) = 1 \text{ W}$ $P_{GM} = 10 \text{ W}$ ($t_p = 20 \mu s$) $I_{GM} = 4 \text{ A}$ ($t_p = 20 \mu s$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity			Unit
				06	10	17	
I_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_J=25^\circ C$	MIN	0.5	10	4	mA
			MAX	5	25	15	
V_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_J=25^\circ C$	MAX	1.5			V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_J=125^\circ C$	MIN	0.2			V
t_{gt}	$V_D=V_{DRM}$ $I_{TM}=3 \times I_{T(AV)}$ $di/dt=0.5A/\mu s$ $I_G=40mA$	$T_J=25^\circ C$	TYP	2			μs
I_H	$I_T=250mA$ Gate open	$T_J=25^\circ C$	MAX	15	50	30	mA
I_L	$I_G=1.2 I_{GT}$	$T_J=25^\circ C$	MAX	30	100	60	
V_{TM}	$I_{TM}=24A$ $t_p=380\mu s$	$T_J=25^\circ C$	MAX	1.6			V
I_{ORM} I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_J=25^\circ C$	MAX	5			μA
		$T_J=110^\circ C$	MAX	1.5			mA
dV/dt	$V_D=67\%V_{DRM}$ Gate open	$T_J=110^\circ C$	MIN		200	100	V/ μs
		$T_J=110^\circ C$	TYP	10			
t_q	$I_{TM}=3 \times I_{T(AV)}$ $V_R=35V$ $di/dt=10A/\mu s$ $t_p=100\mu s$ $dV/dt=5V/\mu s$ $V_D=67\%V_{DRM}$	$T_J=110^\circ C$	MAX	100			μs



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.3			0.406
B		6.3	6.5	0.248	0.256	
C			9.1			0.358
D		12.7			0.500	
F			4.2			0.165
G			3.0			0.118
H		4.5	4.7		0.177	0.185
I		3.53	3.66		0.139	0.144
J		1.2	1.3		0.047	0.051
L			0.9			0.035
M	2.7			0.106		
N			5.3			0.209
N1	2.54			0.100		
O		1.2	1.4		0.047	0.055
P			1.15			0.045