

S16040 160A SCRs

FEATURES

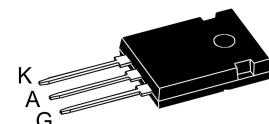
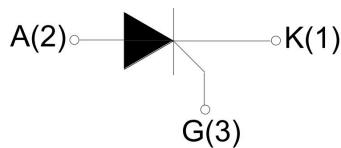
- High thermal cycling performance
- High voltage capacity
- Very high current surge capability

APPLICATIONS

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Parameters Summary

VD/VR:1200/1600V IT(RMS):160A IGT :40mA



TO-247PULS



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40~150	°C
Operating junction temperature range	T _j	-40~125	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	1200/1600	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	1200/1600	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current (T =100°C)	I _{T(RMS)}	160	A
Non repetitive surge peak on-state current	I _{TSM}	1150	A
Average on-state current (180° conduction angle)	I _{T(AV)}	100	A
I ² t value for fusing (tp=10ms)	I ² t	6600	A ² S
Critical rate of rise of on-state current t(I =2×IGT, tr ≤ 100 ns)	di/dt	150	A/μS
Peak gate current	I _{GM}	5	A
Average gate power dissipation	P _{G(AV)}	1	W

Thermal Resistances

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case (DC)	TO-247PULS	0.45 °C/W

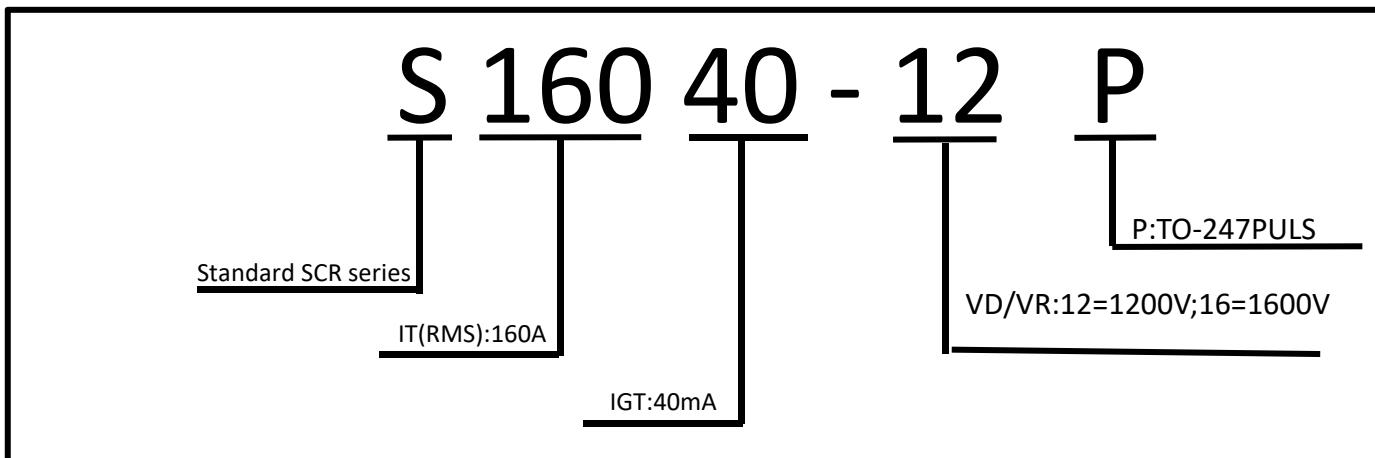
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)

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Symbol	Test Condition		Value	Unit
I _{GT}	V = 12V R = 140Ω	MAX.	40	mA
V _{GT}		MAX.	1.5	V
V _{GD}	VD=V _{DRM} T _j =125°C R=1KΩ	MIN.	0.2	V
I _L	I _G =1.2I _{GT} T _j =25°C	MAX.	250	mA
I _H	VD=12V T _j =25°C	MAX.	200	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	MIN.	1000	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$ITM = 160A$ $tp=380\mu s$	$Tj = 25^{\circ}C$	1. 7	V
I_{DRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$Tj = 25^{\circ}C$	100	μA
I_{RRM}		$Tj = 125^{\circ}C$	8	mA

Ordering Information Scheme



TO-247PULS Package Mechanical Data

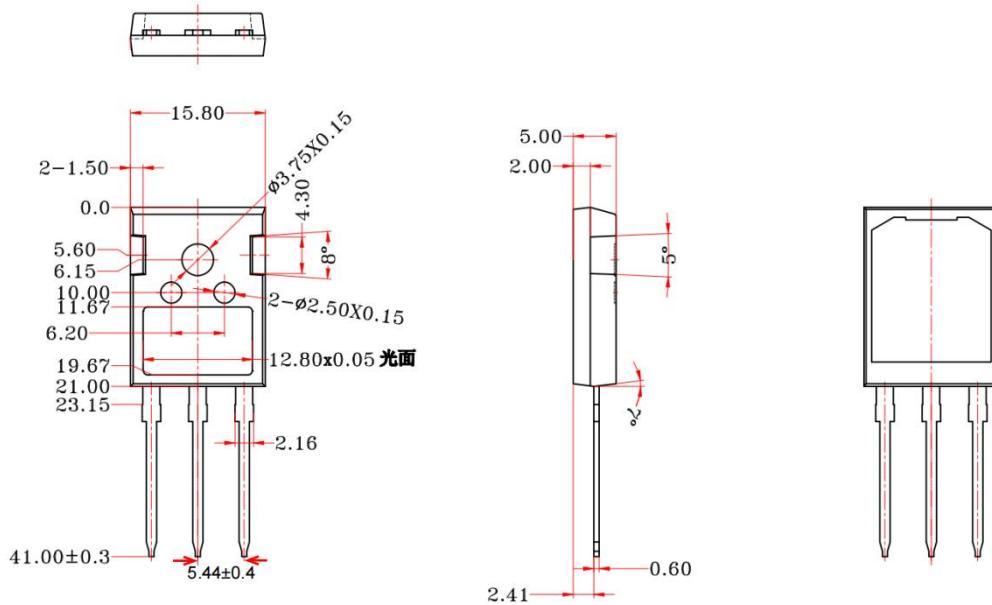


FIG.1 Maximum power dissipation versus Average on-state current

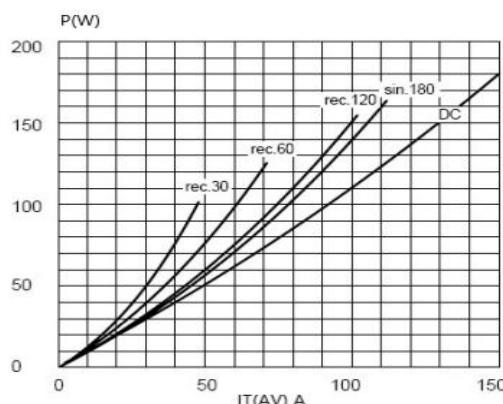


FIG.3: Surge peak on-state current versus number of cycles

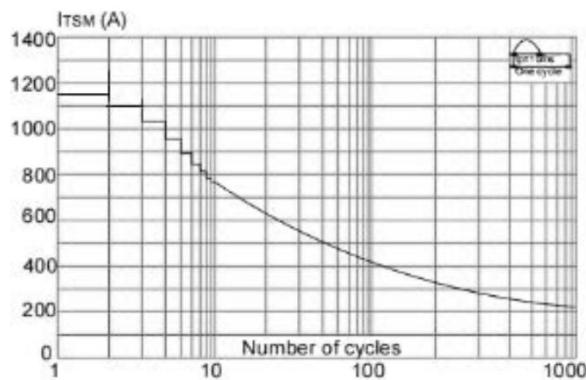


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $I^2 t$ ($dI/dt < 50\text{A}/\mu\text{s}$)

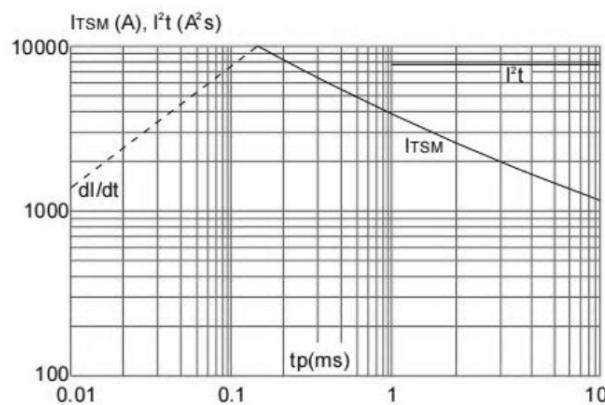


FIG.2: Max. forward current versus case temperature

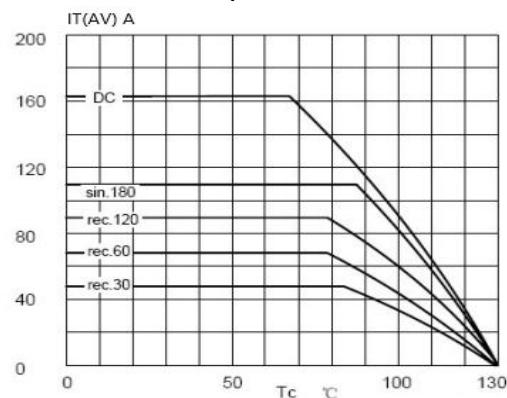


FIG.4: On-state characteristics (maximum values)

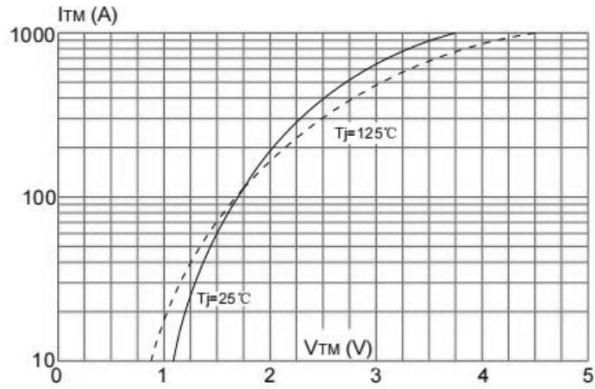


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

