

SOLID STATE DEVICES, INC.

14005 Stage Road * Santa Fe Springs, Ca 90670
Phone: (562) 404-4474 * Fax: (562) 404-1773

DESIGNER'S DATA SHEET

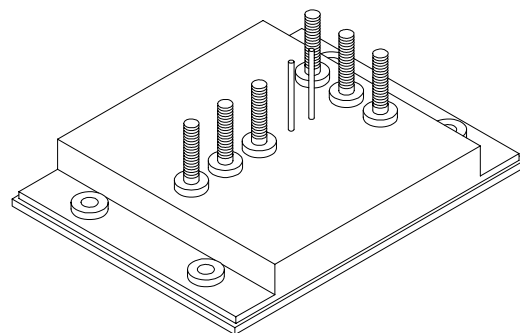
FEATURES:

- High Current Switching for Motor Drives and Inverters for Space Applications.
- Push-Pull Configuration with Freewheeling Diodes.
- Low Saturation Voltage at High Currents.
- Low Mechanical Stress Design.
- Hermetic Sealed Construction for Aerospace Applications.
- Excellent Thermal Management.
- Full Power Screened Hermetic Discretes.
- TX, TXV, and S-Level Screening Available.
- Consult Factory for:
 - Faster Switching Speeds;
 - Other Bridge Configurations and Terminal Styles.

SPMQ496-01

400 AMP/600 VOLTS
IGBT POWER MODULE
FOR SPACE APPLICATIONS

ASPM

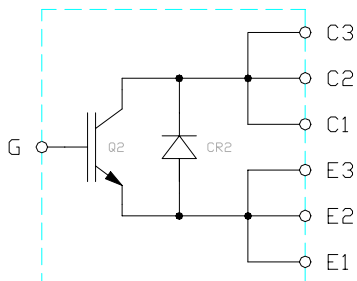


MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Collector to Emitter Voltage	V_{CES}	600	Volts
Gate to Collector Voltage	V_{GES}	± 20	Volts
Continuous Collector Current $T_B = 25^\circ C$ $T_B = 90^\circ C$	I_{C1} I_{C2}	400 200	Amps
Pulse Collector Current $1/$	I_{CM}	600	Amps
Clamped Inductive Load Current ($T_B = 125^\circ C$, $V_{CC} = 480V$, $V_{GE} = 15V$, $L = 30\mu H$, $R_G = 10\Omega$)	I_{LM}	200	Amps
Reverse Voltage Avalange Energy $1/$ ($I_C = 200A$)	E_{ARV}	5.6	mJ
Operating and Storage Temperature	$T_{OP} \& T_{STG}$	-55 TO +150	$^\circ C$
Thermal Resistance, Junction to Base	θ_{JB}	0.14	$^\circ C/W$
Total Module Dissipation @ $T_B = 25^\circ C$ Dissipation Derating from $T_B = 25^\circ C$ to $T_B = 150^\circ C$	P_{D1} P_{D2}	1250 10	W $W/^\circ C$

$1/$ Pulse Duration Limited by T_{JMAX} ; Repetitive Rating

ELECTRICAL SCHEMATIC



NOTE: All specifications are subject to change without notification.
SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: PM0010A

SPMQ496-01

PRELIMINARY



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ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$ (Unless Otherwise Specified)

RATING	SYMBOL	MIN	MAX	UNIT
Collector - Emitter Breakdown Voltage ($I_{CES} = 250\mu\text{A}$, $V_{GE} = 0\text{V}$)	BV_{CES}	600	-	Volts
Gate - Emitter Threshold Voltage ($I_C = 5\text{mA}$, $V_{CE} = V_{GE}$)	$V_{GE(th)}$	2.0	6	Volts
Collector-Emitter Saturation Voltage ($I_C = 200\text{A}$, $V_{GE} = 15\text{V}$)	($T_B = 25^\circ\text{C}$) $V_{CE(sat)2}$	-	3.1	Volts
	($T_B = 90^\circ\text{C}$) $V_{CE(sat)1}$	-	2.5	
Gate-Emitter Leakage Current ($V_{GE} = \pm 20\text{V}$, $V_{CE} = 0\text{V}$)	I_{GES}	-	2.0	μAmps
Collector Leakage Current ($V_{CE} = 480\text{V}$, $V_{GE} = 0\text{V}$)	($T_B = 25^\circ\text{C}$) I_{CES1}	-	225	μAmps
	($T_B = 125^\circ\text{C}$) I_{CES1}	-	20	mAmps
Anti-Parallel Diode Forward Voltage ($I_F = 200\text{A}$, $T_B = 25^\circ\text{C}$)	V_F	-	1.6	Volts
Insulation Resistance (All terminals to Base @ 1500V)	R_{INSUL1}	1	-	$\text{G}\Omega$

PACKAGE OUTLINE: ASPM™

Tolerances
(Unless specified):

.XX $\pm .03$
.XXX $\pm .010$

