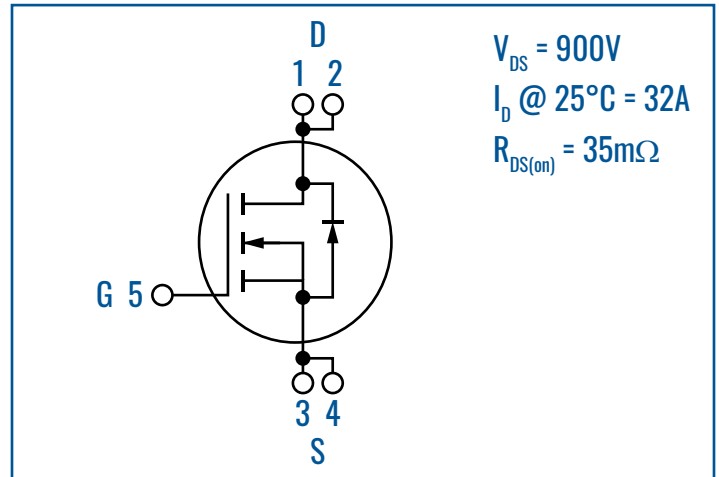


### KEY FEATURES

- LOW  $R_{DS(on)}$  AND  $Q_G$
- AVALANCHE RATED
- TO-258 5L PACKAGE
- HERMETICALLY SEALED, ISOLATED PACKAGE
- JANTX, JANTXV SCREENING AVAILABLE

### APPLICATIONS

- SWITCH-MODE AND RESONANT-MODE POWER SUPPLIES
- DC-DC CONVERTERS
- PFC CIRCUITS
- AC AND DC MOTOR DRIVES
- ROBOTICS AND SERVO CONTROLS



### ORDERING GUIDE

<b>Part Number</b>	SD11704
<b>Description</b>	900V SiC N-Channel Power MOSFET

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise stated)

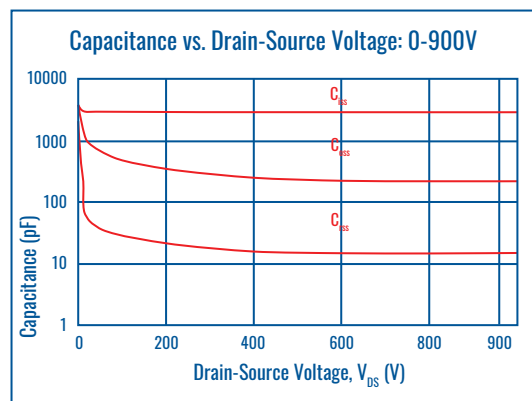
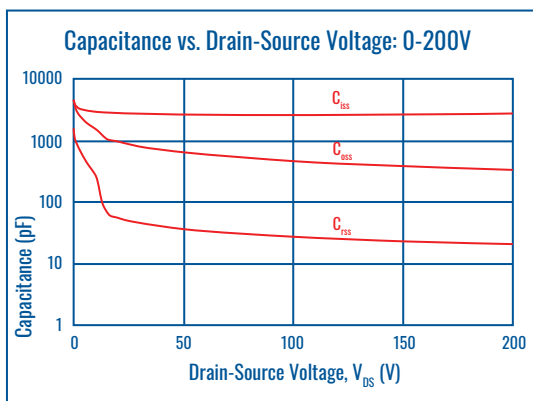
PARAMETER	SYMBOL	VALUE	CONDITIONS
Drain to Source Voltage (static)	$V_{DSmax}$	900V	$V_{GS} = 0V, I_D = 100\mu A$
Continuous Drain Current	$I_D$	32A	$V_{GS} = 20V, T_C = 25^\circ C$
Pulsed Drain Current	$I_{DM}$	128A	$V_{GS} = 20V$ , limited by the package
Max. Power Dissipation	$P_D$	278W	$T_C = 25^\circ C, T_J = 150^\circ C$
Gate-to-Source Voltage (dynamic)	$V_{GSmax}$	-10/+25V	
Gate-to-Source Voltage (static)	$V_{GSop}$	-5/+20V	
Operating Junction Temperature	$T_J$	-55°C to 150°C	
Storage Temperature Range	$T_{STG}$	-55°C to 150°C	
Solder Temperature	$T_L$	260°C	1.6mm (0.063") from case for 10s

**ELECTRICAL SPECIFICATIONS**  
 $T_j = 25^\circ\text{C}$  unless otherwise noted

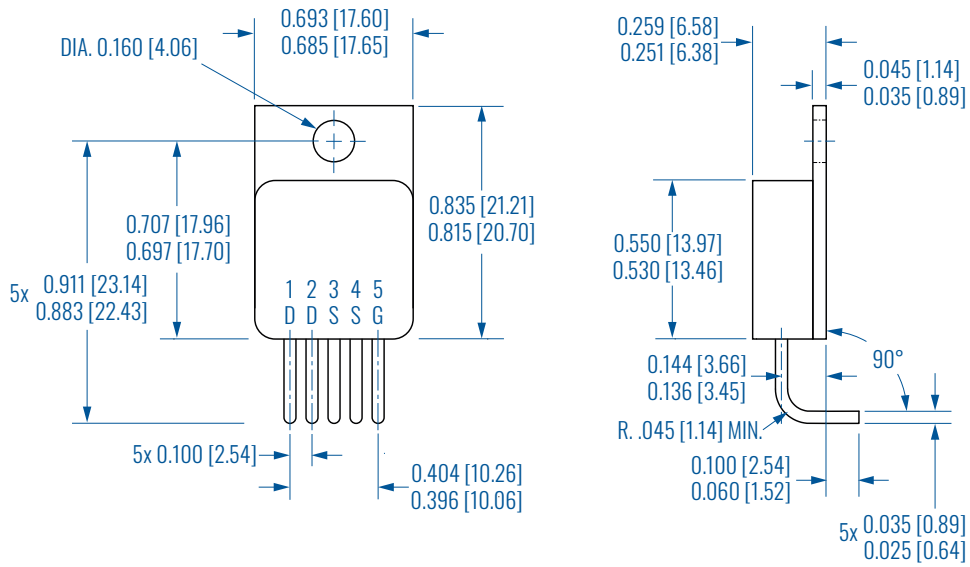
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Drain-to-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 100\mu A$	$V_{(BR)DSS}$	900			V
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 15mA, T_j = 25^\circ\text{C}$	$V_{GS(th)}$	1.8	2.35	4.0	V
	$V_{DS} = V_{GS}, I_D = 15mA, T_j = -55^\circ\text{C}$			3.14		
	$V_{DS} = V_{GS}, I_D = 15mA, T_j = 175^\circ\text{C}$			1.85		
Zero Gate Voltage Drain Current	$V_{DS} = 900V, V_{GS} = 0V$	$I_{DSS}$		2	100	$\mu A$
Gate-to-Source Leakage Forward	$V_{GS} = 20V, V_{DS} = 0V$	$I_{GSS}$		0.962	600	nA
Drain-to-Source On-State Resistance	$V_{GS} = 20V, I_D = 25A, T_j = 25^\circ\text{C}$	$R_{DS(on)}$		35	45	m $\Omega$
	$V_{GS} = 20V, I_D = 25A, T_j = 175^\circ\text{C}$			70		
Transconductance	$V_{DS} = 16V, I_{DS} = 25A, T_j = 25^\circ\text{C}$	$g_{fs}$		14.75		S
Input Capacitance	$V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz$	$C_{iss}$		3218		pF
Output Capacitance		$C_{oss}$		774		pF
Reverse Transfer Capacitance		$C_{rss}$		182		pF
Turn-On Switching Energy		$V_{DS} = 300V, V_{GS} = -3/25V, I_D = 30A,$ $R_{Gon} / R_{Goff} = 10\Omega, L = 412\mu H$	$E_{on}$		141	
Turn-Off Switching Energy		$E_{off}$		219		$\mu J$
Total Gate Charge	$V_{DS} = 300V, V_{GS} = 20V, I_D = 25A$	$Q_g$		79	95	nC
Gate-to-Source Charge		$Q_{gs}$		28	34	nC
Gate-to-Drain Charge		$Q_{gd}$		31	37	nC

**REVERSE DIODE ELECTRICAL SPECIFICATIONS**  
 $T_j = 25^\circ\text{C}$  unless otherwise noted

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Diode Forward Voltage	$V_{GS} = 0V, I_{SD} = 20A, T_j = 25^\circ\text{C}$	$V_{SD}$		3.1	3.4	V
	$V_{GS} = 0V, I_{SD} = 20A, T_j = -55^\circ\text{C}$			3.5		
	$V_{GS} = 0V, I_{SD} = 20A, T_j = 175^\circ\text{C}$			3.1		
Reverse Recovery Time	$V_{GS} = 0V, I_{SD} = 25A, V_R = 15V, di/dt = 120A/\mu S$	$t_{rr}$		84	100	nS
Reverse Recovery Charge	$V_{GS} = 0V, I_{SD} = 25A, V_R = 15V, di/dt = 120A/\mu S$	$Q_{RR}$		84		nC
Peak Reverse Recovery Current	$V_{GS} = 0V, I_{SD} = 25A, V_R = 15V, di/dt = 120A/\mu S$	$I_{RRM}$		2		A



**OUTLINE DIMENSIONS**



**All Dimensions are in Inches (mm)**