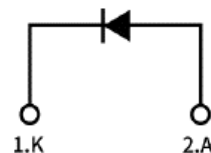


Features

- Zero Forward Recovery Voltage
- Zero Reverse Recovery Current
- Excellent Surge Current Capability
- Temperature Independent Switching
- Positive Temperature Coefficient on VF
- High Frequency Operation



TO-247-2L

Application

- Parallel Devices Without Thermal Runaway
- Power Factor Correction
- DC-AC Inverters
- DC-DC Inverters



Halogen-Free

Maximum Ratings(Ta=25°C unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltages	$T_C=25^{\circ}C$	650	V
I_F	Continuous Forward Current	$T_C=25^{\circ}C$	108	A
		$T_C=135^{\circ}C$	49	
		$T_C=145^{\circ}C$	40	
I_{FSM}	Non-Repetitive Forward Surge Current (Half Sine Pulse)	$T_C=25^{\circ}C, t_p=10ms$	210	A
		$T_C=150^{\circ}C, t_p=10ms$	170	
I_{FRM}	Repetitive Forward Surge Current, Sine Half-Wave (Freq= 0.1Hz, 50cycles)	$T_C=25^{\circ}C, t_p=10ms$	105	A
P_{tot}	Power Dissipation	$T_C=25^{\circ}C$	333	W
E_{AS}	Single Pulse Avalanche Energy	$T_C = 25^{\circ}C$, $L = 0.5mH$, $V_{DD} = 50V$, $I_{peak} = 20A$	100	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature		-55~+175	°C

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
DA40C6F	TO-247-2L	DA40C6F	/	/	/	/

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.45	°C/W

Electrical Characteristics($T_{VJ}=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{DC}	DC Blocking Voltage	$I_R=100\mu\text{A}$	650	-	-	V
V_F	Forward Voltage	$I_F=40\text{A}, T_J=25^{\circ}\text{C}$	-	1.35	1.62	V
		$I_F=40\text{A}, T_J=175^{\circ}\text{C}$	-	1.63	-	
I_R	Reverse Current	$V_R=650\text{V}, T_J=25^{\circ}\text{C}$	-	3.0	160	μA
		$V_R=650\text{V}, T_J=175^{\circ}\text{C}$	-	17	-	
C	Total Capacitance	$V_R=1\text{V}, f=1\text{MHz}$	-	1721	-	pF
		$V_R=200\text{V}, f=1\text{MHz}$	-	244	-	
		$V_R=400\text{V}, f=1\text{MHz}$	-	174	-	
E_C	Capacitance stored energy	$V_R=400\text{V}$	-	19	-	μJ
Q_C	Total Capacitive Charge	$V_R=400\text{V}$	-	126	-	nC

Typical Operating Characteristics

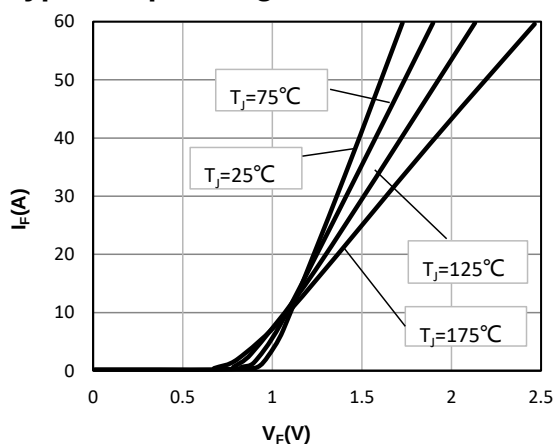


Fig1. Forward Characteristics

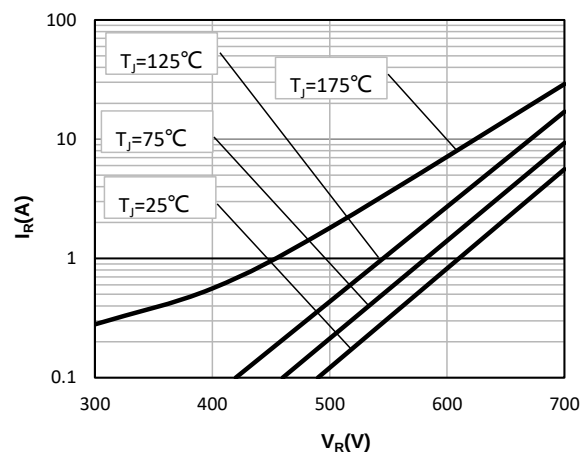


Fig2. Reverse Characteristics

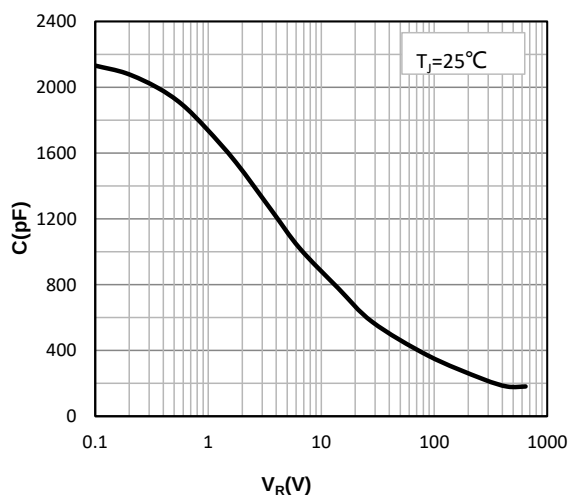


Fig3. Capacitance vs. Reverse Voltage

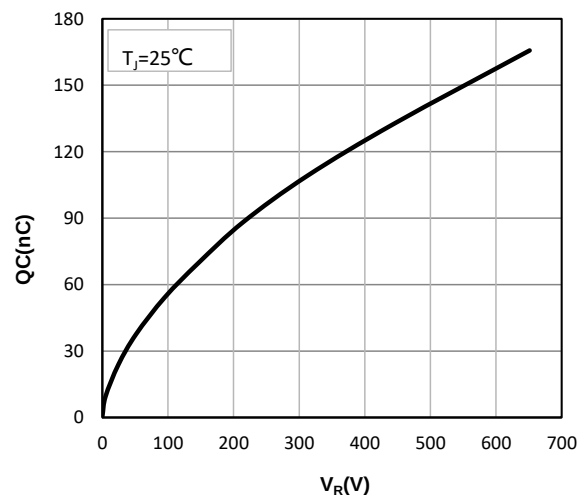
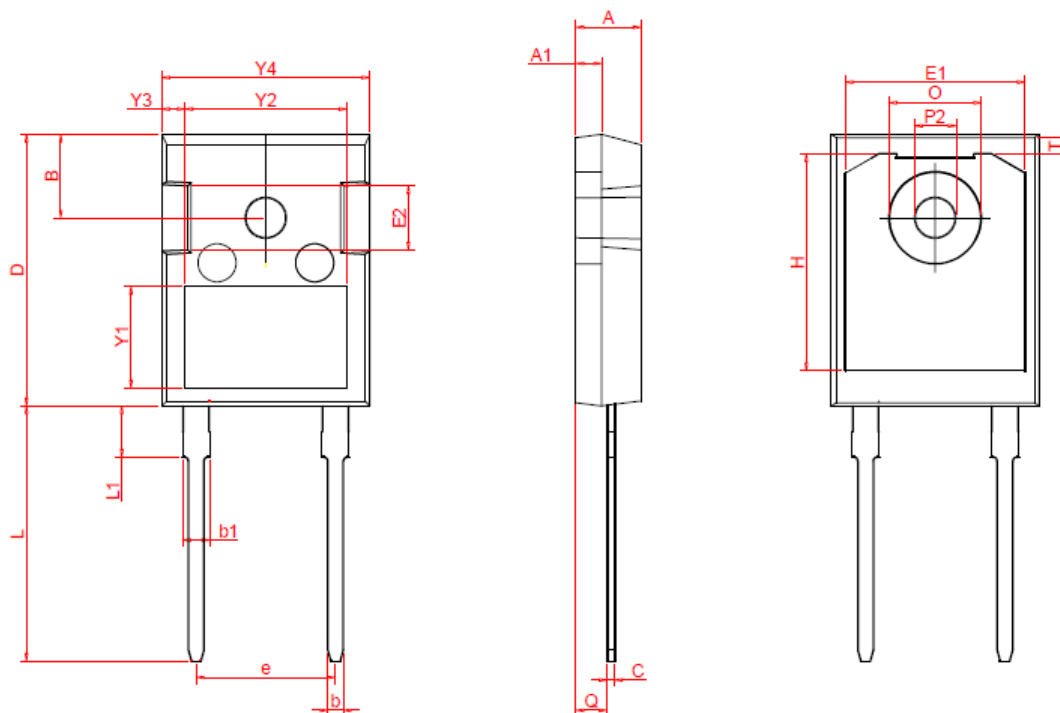


Fig3. Recovery Charge vs. Reverse Voltage

TO-247-2L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	4.700	5.300	0.185	0.209
A1	1.700	2.300	0.067	0.091
C	0.450	0.750	0.018	0.030
Q	2.200	2.600	0.087	0.102
O	7.100	7.400	0.280	0.291
P2	3.450	3.750	0.136	0.148
L	19.000	21.000	0.748	0.827
L1	4.200	4.500	0.165	0.177
b	1.000	1.400	0.039	0.055
b1	1.800	2.250	0.071	0.089
e	10.650	10.950	0.419	0.431
D	20.950	21.350	0.825	0.841
Y1	7.600	8.100	0.299	0.319
Y2	11.000	13.000	0.433	0.512
Y3	1.750	2.250	0.069	0.089
Y4	16.000	16.400	0.630	0.646
E2	4.600	4.900	0.181	0.193
T	1.35REF		0.053REF	
H	16.25REF		0.640REF	
E1	14REF		0.551REF	
B	6.55REF.		0.258REF	