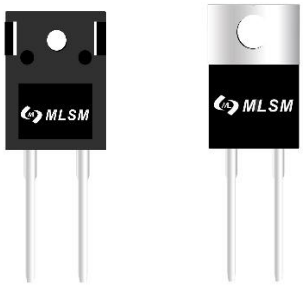
DY(A)20C6F

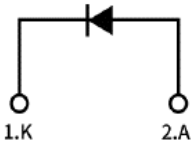
650V/15A SiC Schottky Diode

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 TO-220-2L



Application

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

Pb-Free RoHS Halogen-Free

Maximum Ratings(Ta=25℃ unless otherwise noted)

Symbol	Parameter	Test condition	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltages	T_C=25℃	650	V
I_F	Continuous Forward Current	T_C=25℃	59	A
		T_C=135℃	27	
		T_C=150℃	20	
I_{FSM}	Non-Repetitive Forward Surge Current (Half Sine Pulse)	T_C=25℃,tp=10ms	120	A
		T_C=150℃,tp=10ms	95	
I_{FRM}	Repetitive Forward Surge Current, Sine Half-Wave (Freq= 0.1Hz, 50cycles)	T_C=25℃,tp=10ms	60	A
E_{AS}	Single Pulse Avalanche Energy	T_C = 25℃, L= 0.5mH, V_{DD}= 50V, $I_{\_peak}$ =12.5A	39	mJ
P_{tot}	Power Dissipation		190	W
T_J,T_{stg}	Operating Junction and Storage Temperature		-55~+175	℃

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
DY20C6F	TO-220-2L	DY20C6F	50	1,000	5,000	/
DA20C6F	TO-247-2L	DA20C6F	/	/	/	/

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.79	℃/W

Electrical Characteristics(T_{VJ}=25℃ unless otherwise noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{DC}	DC Blocking Voltage	I_R=100μA	650	-	-	V
V_F	Forward Voltage	I_F=20A,T_J=25℃	-	1.35	1.62	V
		I_F=20A,T_J=175℃	-	1.61	-	
I_R	Reverse Current	V_R=650V,T_J=25℃	-	3.0	80	μA
		V_R=650V,T_J=175℃	-	13	-	
C	Total Capacitance	V_R=1V,f=1MHz	-	870	-	pF
		V_R=200V,f=1MHz	-	125	-	
		V_R=400V,f=1MHz	-	90	-	
E_C	Capacitance stored energy	V_R=400V	-	9.5	-	μJ
Q_C	Total Capacitive Charge	V_R=400V	-	64	-	nC

Typical Operating Characteristics

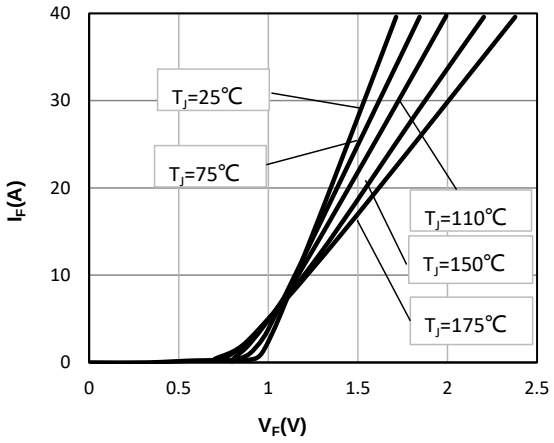


Fig1. Forward Characteristics

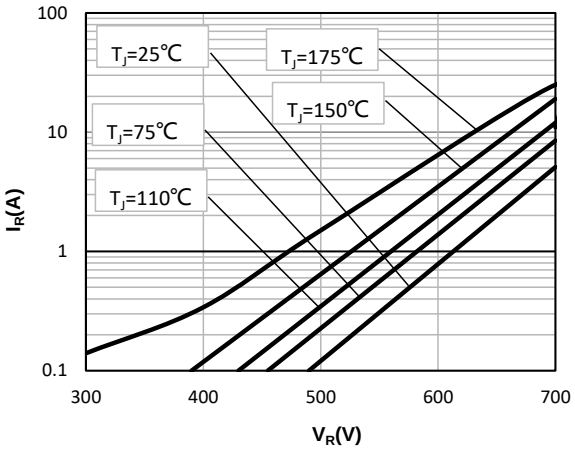


Fig2. Reverse Characteristics

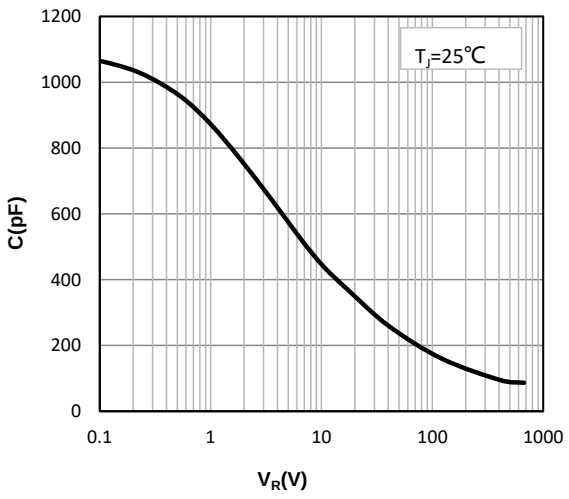


Fig3. Capacitance vs. Reverse Voltage

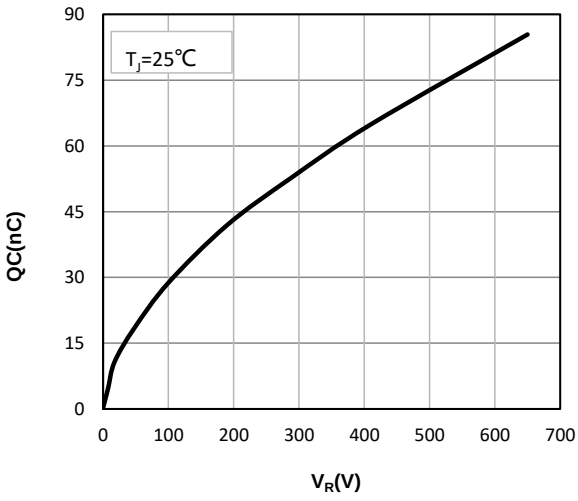
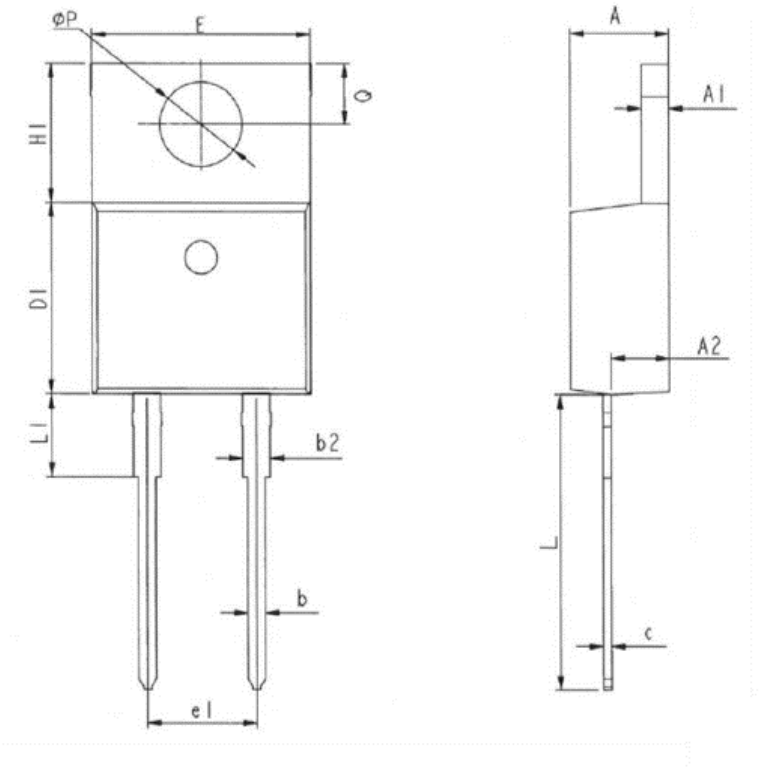


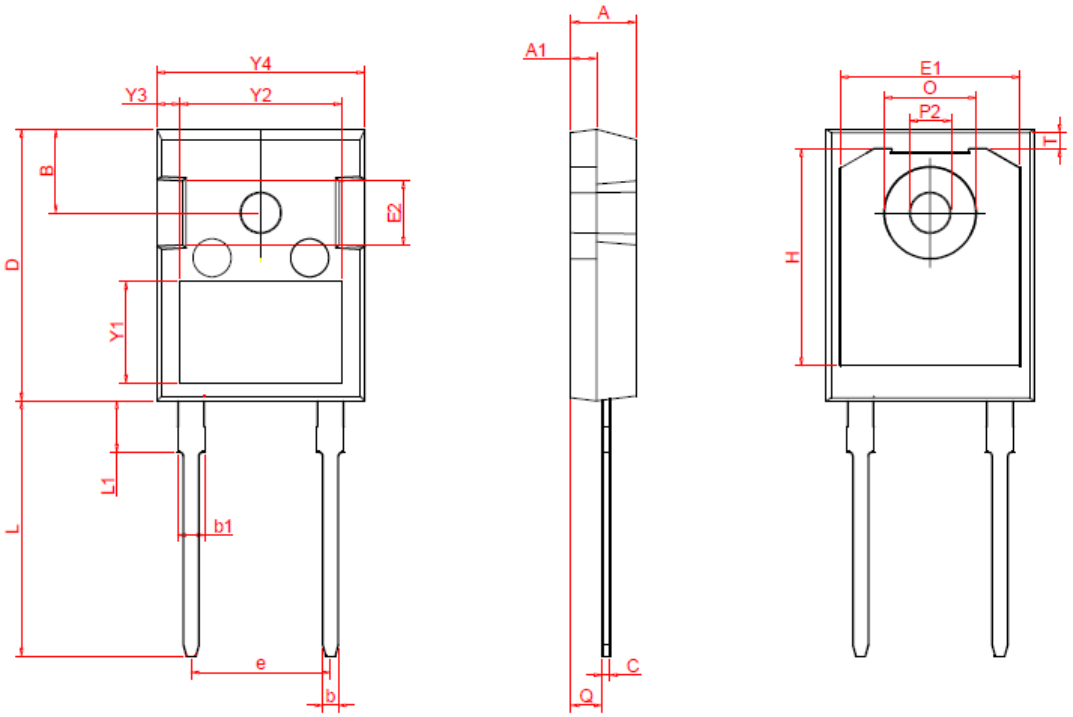
Fig3. Recovery Charge vs. Reverse Voltage

TO-220-2L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	4.370	4.770	0.172	0.188
A1	1.220	1.420	0.048	0.056
A2	2.490	2.890	0.098	0.114
b	0.760	0.910	0.030	0.036
b2	1.170	1.470	0.046	0.058
c	0.300	0.480	0.012	0.019
D1	8.500	8.900	0.335	0.350
E	9.860	10.360	0.388	0.408
e1	5.08BSC		0.2BSC	
H1	6.100	6.500	0.240	0.256
L	13.100	13.700	0.516	0.539
L1	-	4.100	-	0.162
P	3.700	3.990	0.146	0.157
Q	2.540	2.940	0.100	0.116

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	