

600V N-CHANNEL ENHANCEMENT POWER MOSFET

MAIN CHARACTERISTICS

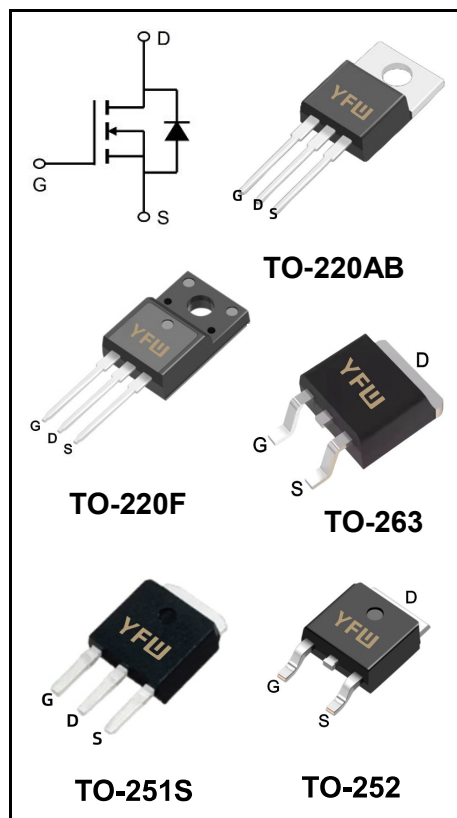
I_D	8A
V_{DSS}	600V
$R_{DS(on)}=typ(@V_{GS}=10V)$	$<1\Omega$ (Type: 0.85 Ω)

Features

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEURoHS2011/65/EUdirectives

Mechanical Data

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature 275℃ maximum, 10s per JESD22-106



Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value			Units
		220AB	220F	263/251/252	
Drain-Source Voltage	V _{DS}	600			V
Gate-Source Voltage	V _{GS}	±30			V
Continue Drain Current	I _D	8			A
-Continuous (TC = 100°C)		5.6			
Pulsed Drain Current (Note1)	I _{DM}	32			A
Power Dissipation	P _D	100	38	100	W
-Derate above 25°C		1.25	0.3	1.14	W/°C
Single Pulse Avalanche Energy (Note2)	E _{AS}	450			mJ
Avalanche Current (Note 1)	I _{AR}	8			A
Repetitive Avalanche Energy (Note 1)	E _{AS}	13.5			mJ
Operating Temperature Range	T _J	150			°C
Storage Temperature Range	T _{STG}	-55 to +150			°C
Thermal Resistance, Junction to Case	R _{θJC}	0.82	3.57	0.71	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	62.5	62.5	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	600	-	-	V
Breakdown Voltage Temperature Coefficient	$I_D = 250\text{ }\mu\text{A}$ (Referenced to 25°C)	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	-	0.65	-	V/°C
Drain-Source Leakage Current	$V_{DS} = 600\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
	$V_{DS} = 480\text{ V}, T_C = 125^\circ\text{C}$		-	-	10	
Gate Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 4\text{ A}$	$R_{DS(on)}$	-	0.85	1	Ω
Forward Transconductance	$V_{DS} = 15\text{ V}, I_D = 4\text{ A}$	g_{fs}	-	7	-	S
Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V},$ $f = 1\text{ MHz}$	C_{iss}	-	1008	-	pF
Output Capacitance		C_{oss}	-	110	-	
Reverse Transfer Capacitance		C_{rss}	-	7	-	
Turn-on Delay Time	$I_D = 8\text{ A}, V_{DD} = 300\text{ V},$ $R_G = 10\Omega$ (Note3,4)	$t_d(ON)$	-	16	-	nS
Rise Time		t_r	-	18	-	
Turn-Off Delay Time		$t_d(OFF)$	-	40	-	
Fall Time		t_f	-	14	-	
Total Gate Charge	$I_D = 8\text{ A}, V_{DD} = 480\text{ V},$ $V_{GS} = 10\text{ V}$ (Note3,4)	Q_G	-	20	-	nC
Gate to Source Charge		Q_{GS}	-	7	-	
Gate to Drain Charge		Q_{GD}	-	11	-	

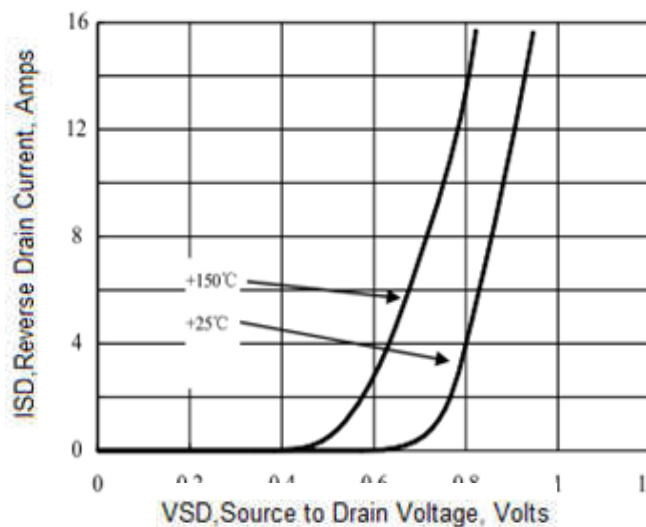
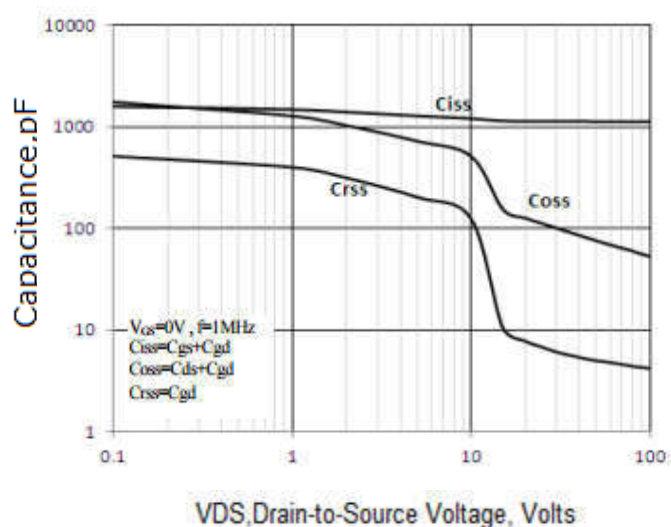
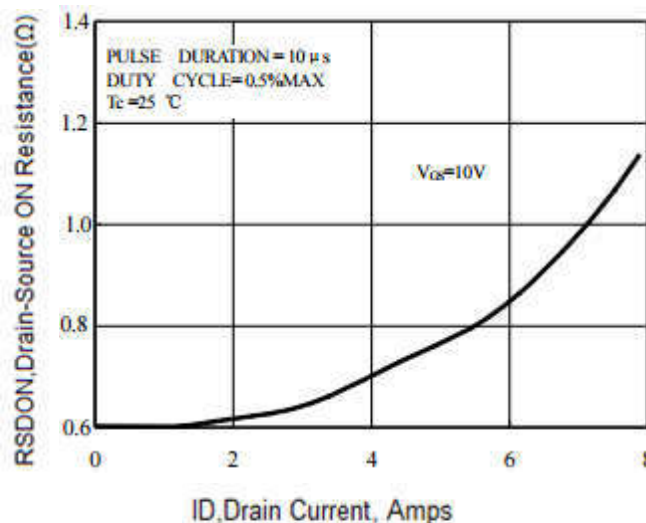
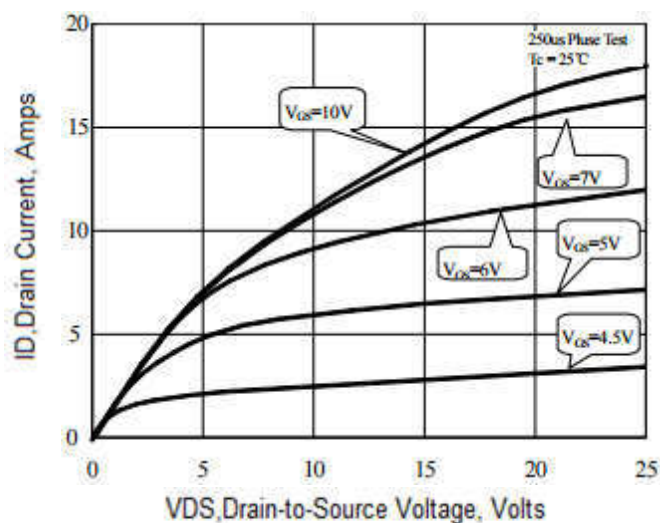
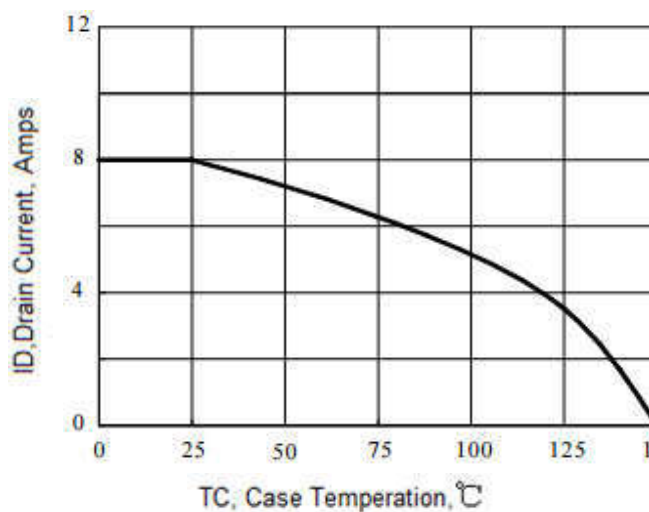
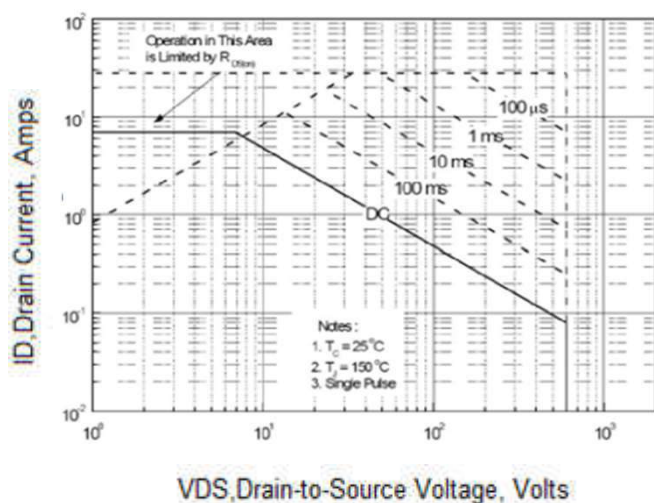
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximum Body-Diode Continuous Current		I_S	-	-	8	A
Maximum Body-Diode Pulsed Current		I_{SM}	-	-	35	A
Drain-Source Diode Forward Voltage	I_{SD} = 8 A,	V_{SD}	-	-	1.4	V
Reverse Recovery Time	I_{SD} = 8 A, V_{GS} = 0 V, dI_F / dt = 100 A/μs	trr	-	340	-	nS
Reverse Recovery Charge		Qrr	-	1.7	-	uC

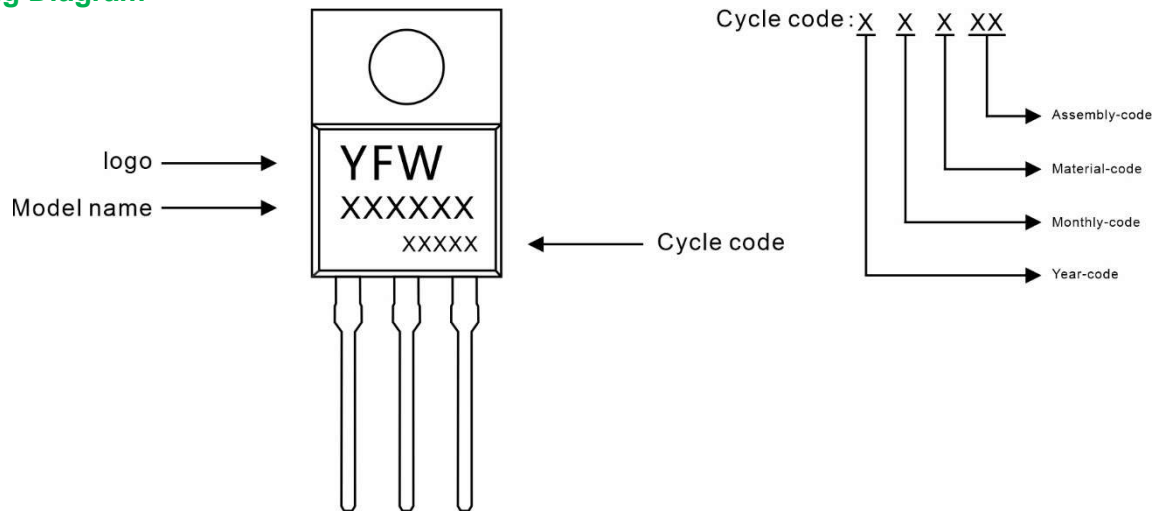
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. **I_{AS}** = 8A, **V_{DD}** = 50 V, **L** =14.5mH, **R_G** = 25Ω, starting **T_J** = 25°C.
3. ulse test: Pulse Width ≤300 μ s, Duty Cycle≤2%.
4. Essentially Independent of Operating Temp

Ratings and Characteristic Curves



Marking Diagram



Ordering information

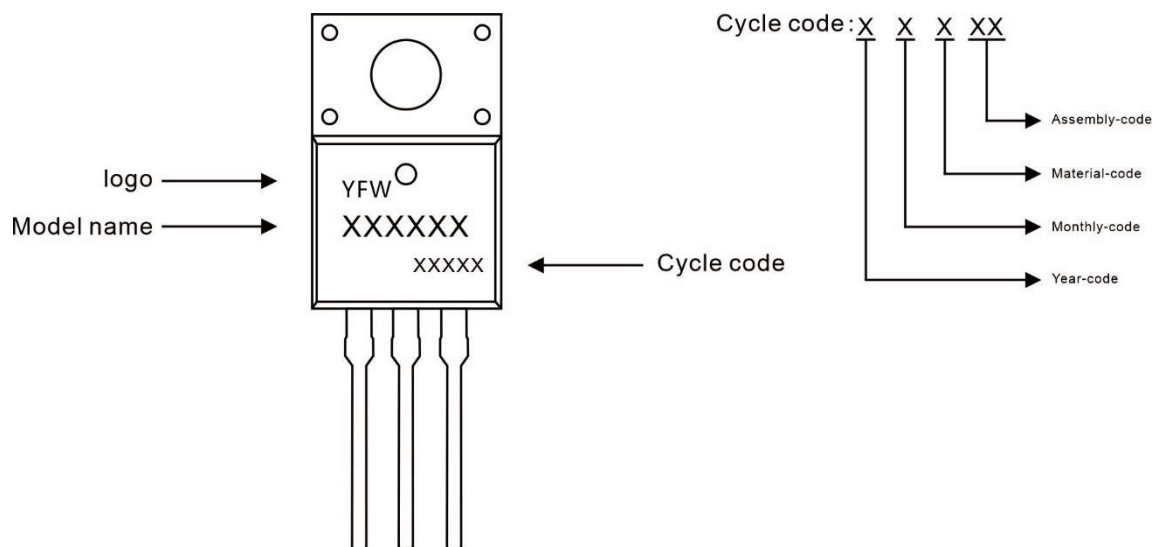
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW8N60AT	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220AB

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

Marking Diagram



Ordering information

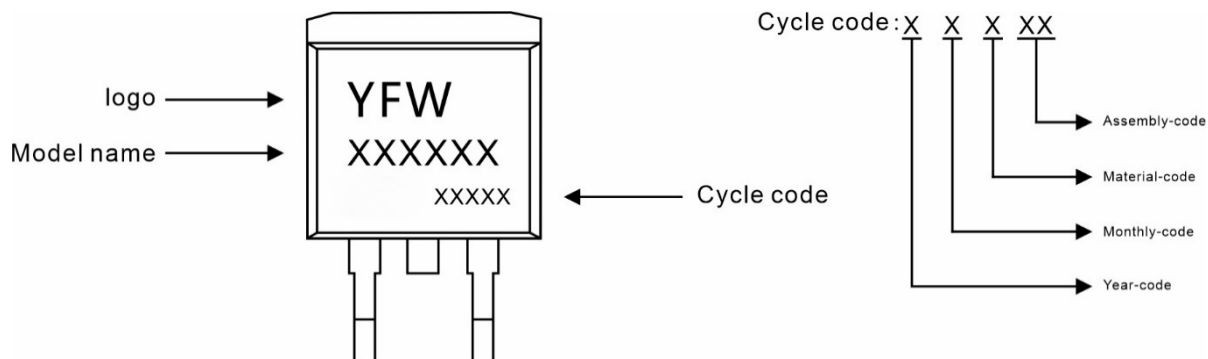
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW8N60AF	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220F

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

Marking Diagram



Ordering information

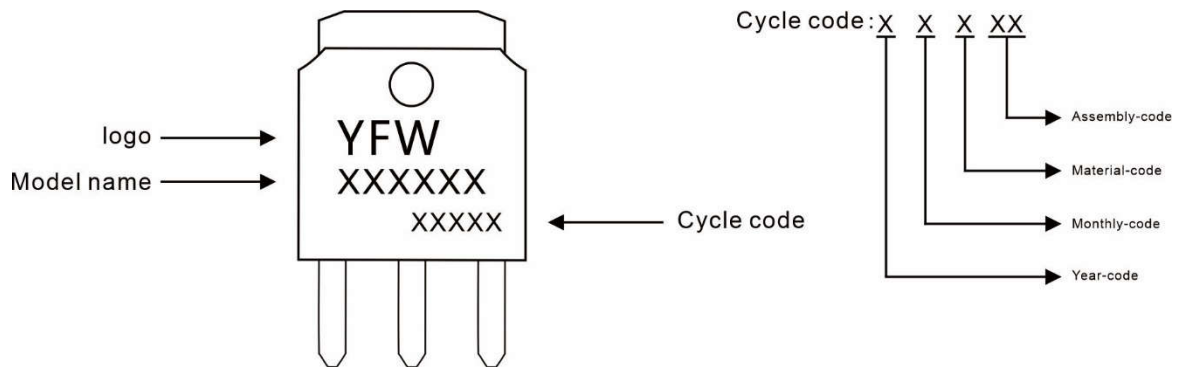
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW8N60AS	TO-263	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

Package Dimensions

TO-263

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

Marking Diagram



Ordering information

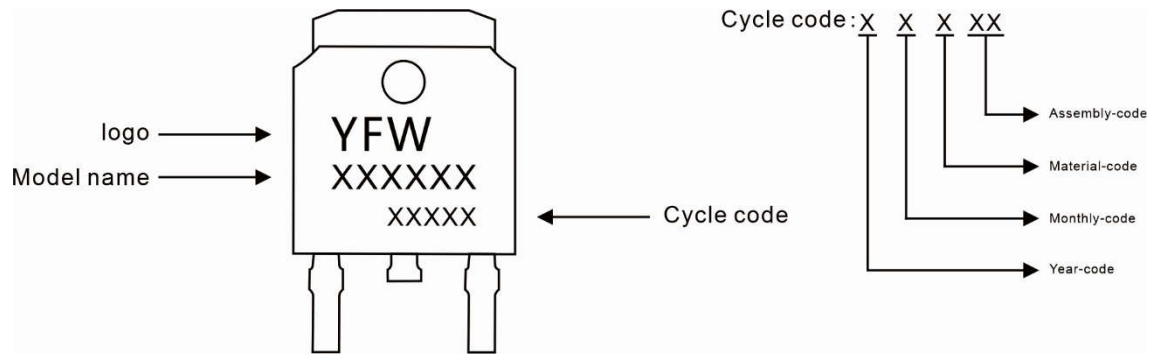
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW8N60AMJ	TO-251S	0.011oz(0.32g)	80pcs/tube	4000pcs/box 24000pcs/Carton

Package Dimensions

TO-251S

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.1	2.5	0.083	0.098
A1	6.3	6.9	0.248	0.271
A2	0.9	1.1	0.035	0.043
A3	TYP0.5		TYP0.019	
b	0.6	0.8	0.024	0.031
c	0.4	0.5	0.015	0.020
D	5.3	5.5	0.209	0.217
D2	3.65	4.05	0.144	0.159
E	5.8	6.4	0.228	0.252
E2	0.9	1.4	0.035	0.055
e	TYP2.29		TYP0.090	
e1	TYP4.58		TYP0.180	
L	3.7	4.3	0.146	0.169

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW8N60AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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