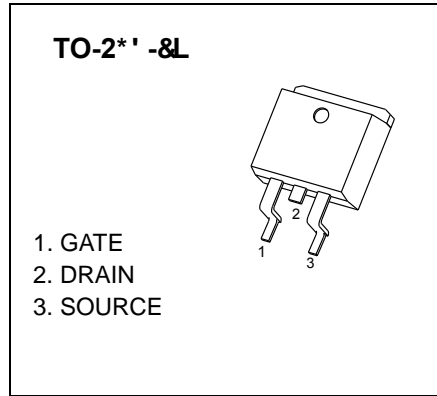


## TO-263 Plastic-Encapsulate MOSFETS

### IRFB830 MOSFET( N-Channel )

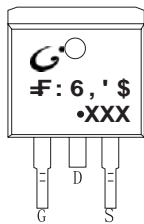
$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
500V	1.5Ω@10V	4.5A



#### FEATURES

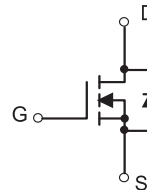
- . Dynamic dv/dt Rating
- . Repetitive Avalanche Rated
- . Fast Switching
- . Ease of Paralleling
- . Simple Drive Requirement

#### MARKING



IRFB830= Device code  
Solid dot = Green molding compound device,  
if none, the normal device  
XXX=Date Code

#### EQUIVALENT CIRCUIT



#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	4.5	A
$I_D @ T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10 V$	2.9	A
$I_{DM}$	Pulsed Drain Current (note 1)	18	A
$P_D$	Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	°C/W
$V_{GS}$	Gate-Source Voltage	±20	V
$E_{AS}$	Single Pulse Avalanche Energy (note2)	280	mJ
$I_{AR}$	Avalanche Current (note 1)	4.5	A
$E_{AR}$	Repetitive Avalanche Energy (note 1)	7.4	mJ
dv/dt	Peak Diode Recovery dv/dt (note 3)	3.5	V/ns
$T_J$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55~+150	°C

## MOSFET ELECTRICAL CHARACTERISTICS

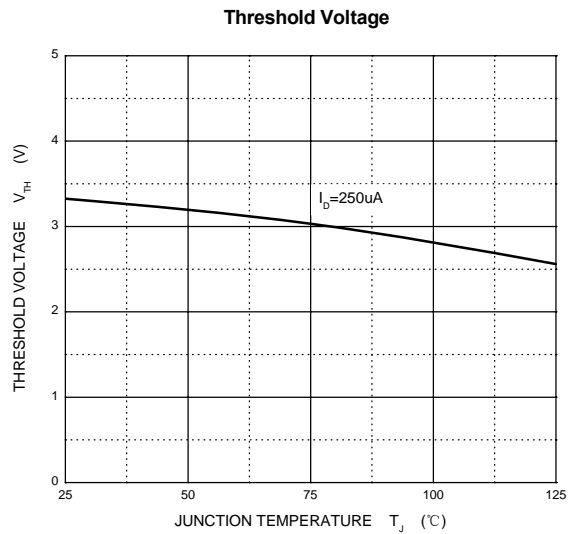
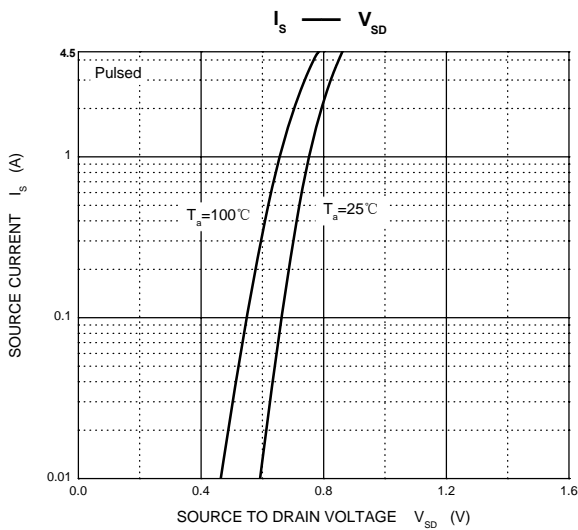
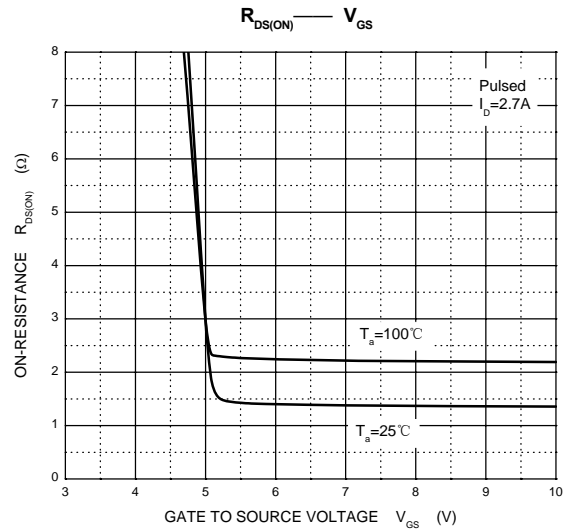
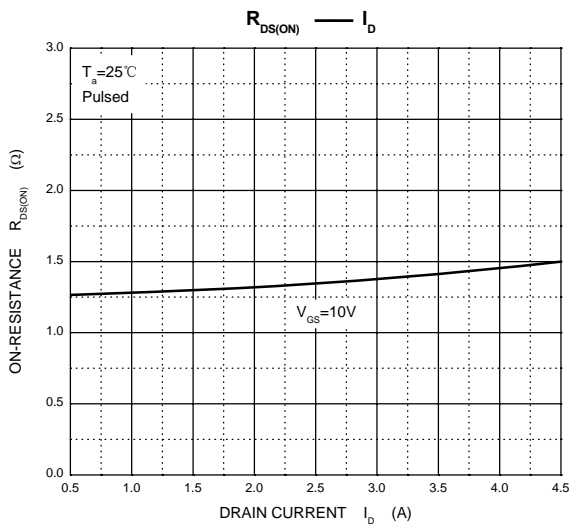
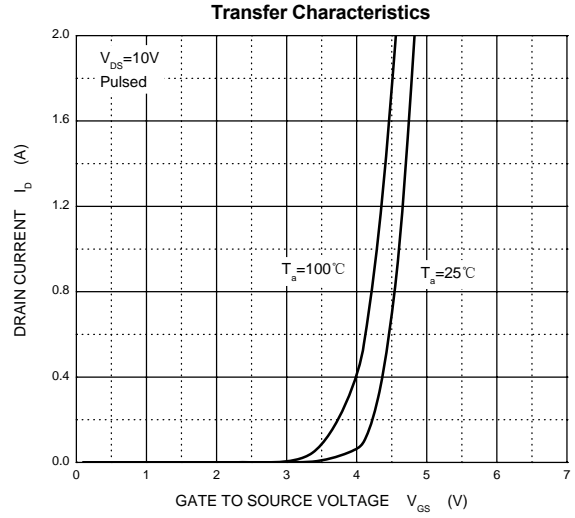
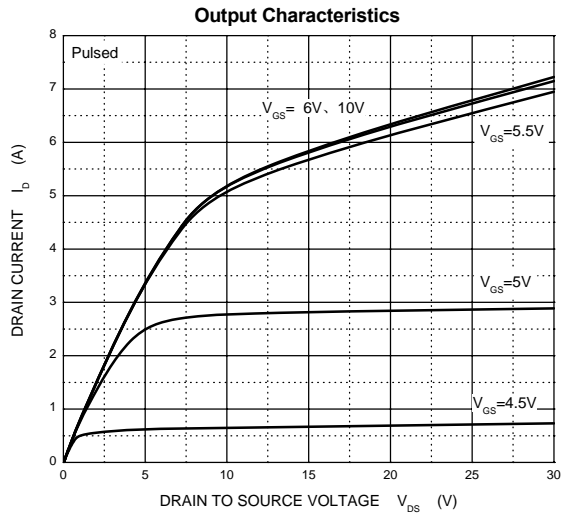
$T_a=25^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Drain-source breakdown voltage</b>	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	500			V
<b>Gate-threshold voltage</b>	$V_{(GS)th}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3.5	4	
<b>Gate-body leakage</b>	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
<b>Zero gate voltage drain current</b>	$I_{DSS}$	$V_{DS}=500V, V_{GS}=0V$			25	$\mu A$
<b>Drain-source on-resistance</b> (note 4)	$R_{DS(on)}$	$V_{GS}=10V, I_D=2.7A$ (note 4)		1.3	1.5	$\Omega$
<b>Forward transconductance</b> (note 4)	$g_{fs}$	$V_{DS}=50V, I_D=2.7A$ (note 4)	2.5			S
<b>Diode forward voltage</b>	$V_{SD}$	$I_S=4.5A, V_{GS}=0V$			1.6	V
<b>Total gate charge</b>	$Q_g$	$V_{DS}=400V, V_{GS}=10V, I_D=3.1A$			38	nC
<b>Gate-source charge</b>	$Q_{gs}$				5.0	
<b>Gate-drain charge</b>	$Q_{gd}$				22	
<b>Input capacitance</b> (note 5)	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		610		pF
<b>Output capacitance</b> (note 5)	$C_{oss}$			160		
<b>Reverse transfer capacitance</b> (note 5)	$C_{rss}$			68		
<b>Turn-on delay time</b> (note 4,5)	$t_{d(on)}$	$V_{DD}=250V, R_D=79\Omega,$ $I_D=3.1A, R_G=12\Omega$		8.2		nS
<b>Rise time</b> (note 4,5)	$t_r$			16		
<b>Turn-off delay time</b> (note 4,5)	$t_{d(off)}$			42		
<b>Fall time</b> (note 4,5)	$t_f$			16		

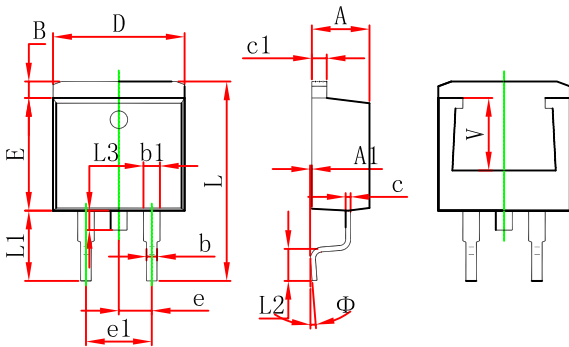
Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2.  $L = 24mH, I_{AS} = 4.5A, V_{DD} = 50V, R_G = 25\Omega$  Starting  $T_J = 25^\circ C$ .
3.  $I_{SD} = 4.5A, di/dt = 300A/\mu s, V_{DD} = V_{(BR)DSS}$ , Starting  $T_J = 25^\circ C$ .
4. Pulse Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
5. These parameters have no way to verify.

# Typical Characteristics

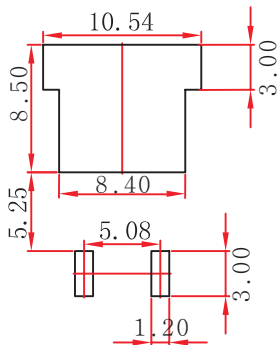


## TO-263-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	

## TO-263-2L Suggested Pad Layout



**Note:**

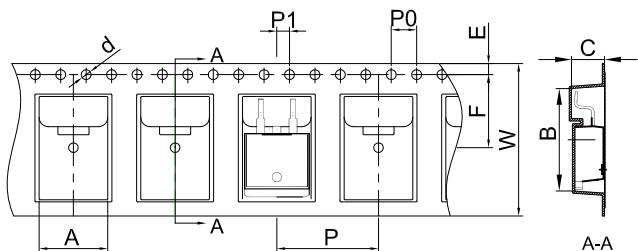
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### NOTICE

JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

# TO-263-2L Tape and Reel

## TO-263-2L Embossed Carrier Tape

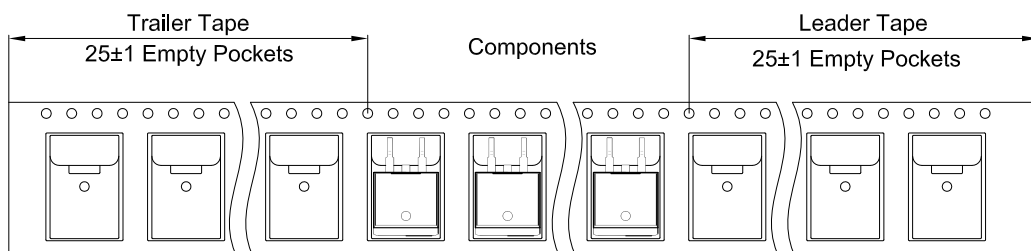


### Packaging Description:

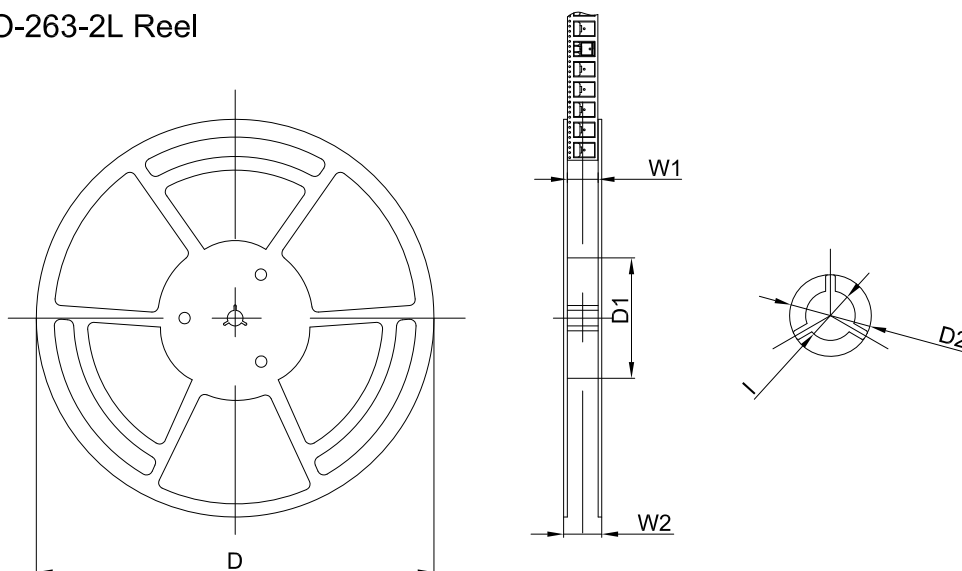
TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 800 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-263-2L	10.80	16.13	5.21	Ø1.55	1.75	11.50	4.00	16.00	2.00	24.00

## TO-263-2L Tape Leader and Trailer



## TO-263-2L Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	Ø330.00	100.00	Ø21.00	24.4	30.4	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
800 pcs	13 inch	800 pcs	340×336×36	8,000 pcs	400×353×365	