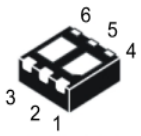
LRC6N33YT1G

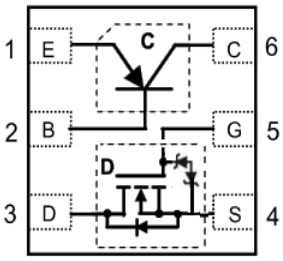
General Purpose Transistors with Power MOSFET

1. FEATURES

- ESD Protected:1500V
- High current capacity in compact package.
- Epitaxial planar type.
- Low threshold voltage (VGS(th): 0.9V...1.5V) makes it ideal for low voltage applications.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



DFN2020-6D



2. APPLICATIONS

- Charging circuit
- Other power management in portable equipments

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LRC6N33YT1G	2N	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter(N MOSFET)	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	50	Vdc
Gate–to–Source Voltage – Continuous	VGS	±20	Vdc
Drain Current – Continuous TA = 25°C – Pulsed (tp≤10μs)	 ID IDM	 200 800	mAdc

Parameter(PNP TRANSISTORS)	Symbol	Limits	Unit
Collector-Emitter Voltage	VCEO	-25	V
Collector-Base Voltage	VCBO	-40	V
Emitter-Base Voltage	VEBO	-5	V
Collector Current	IC	-1500	mAdc
Base Current	IB	-200	mA

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Junction−to−Ambient − Steady State (Note 1)	RΘJA	556	ºC/W
Junction and Storage Temperature	TJ,Tstg	-55 ~+150	ºC

1. FR–4 = 1.0×0.75×0.062 in.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

N MOSFET

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μAdc)	VBRDSS	50	-	-	Vdc
Zero Gate Voltage Drain Current (VGS = 0, VDS = 25 Vdc) (VGS = 0, VDS = 50 Vdc)	IDSS	- -	- -	0.1 0.5	μAdc
Gate–Body Leakage Current, Forward (VGS = 20 Vdc)	IGSSF	-	-	10.0	μAdc
Gate–Body Leakage Current, Reverse (VGS = - 20 Vdc)	IGSSR	-	-	-10	μAdc

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 1.0mAdc)	VGS(th)	0.9	-	1.5	Vdc
Static Drain–Source On–State Resistance (VGS = 2.75 Vdc, ID < 200 mAdc, TA = –40°C ~ +85°C) (VGS = 5.0 Vdc, ID = 200 mAdc)	RDS(on)	- -	5.6 -	10 3.5	Ohms
Forward Transconductance (VDS = 25 Vdc, ID = 200 mAdc, f = 1.0 kHz)	gfs	100	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Ciss	-	22.8	-	pF
Output Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Coss	-	3.5	-	pF
Reverse Transfer Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Crss	-	2.9	-	pF

SWITCHING CHARACTERISTICS

Turn-On Delay Time	(VDD = 30 Vdc , VGEN = 10 V,RG =25Ω ,RL =60 Ω,ID =500 mAdc)	td(on)	-	3.8	-	ns
Turn-Off Delay Time		td(off)	-	19	-	

2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)(Con.)

PNP TRANSISTORS

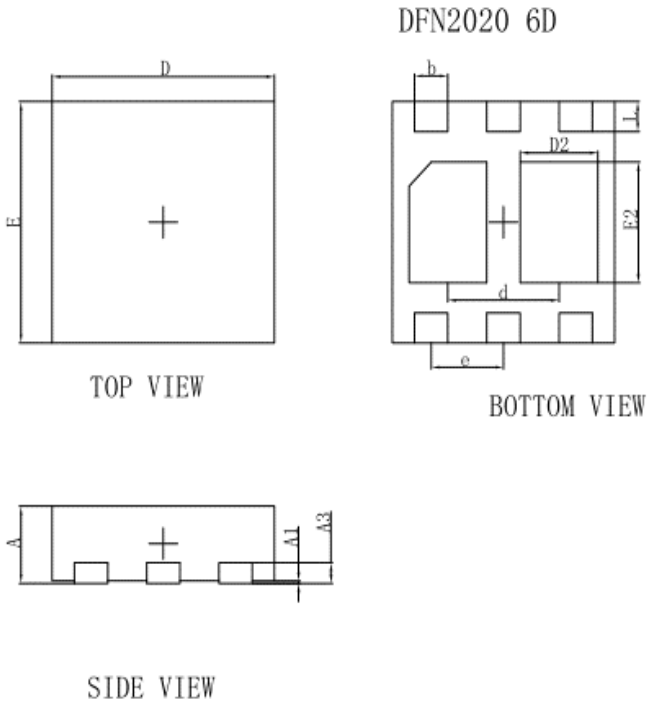
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage (IC =-1.0mA)	V(BR)CEO	-25	-	-	V
Emitter-Base Breakdown Voltage (IE =-100μA)	V(BR)EBO	-5	-	-	V
Collector-Base Breakdown Voltage (IC =-100μA)	V(BR)CBO	-40	-	-	V
Collector Cutoff Current (VCB =-35V)	ICBO	-	-	-150	nA
Emitter Cutoff Current (VEB =-4V)	IEBO	-	-	-150	nA

ON CHARACTERISTICS (Note 3)

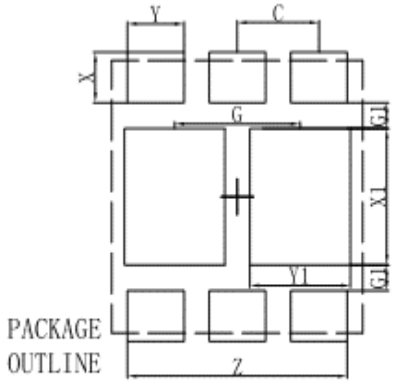
DC Current Gain (IC =-500mA,VCE =-2V)	HFE	60	-	135	
Collector-Emitter Saturation Voltage (IC =-800mA,IB =-80mA)	VCE(S)	-	-	-0.5	V

7.OUTLINE AND DIMENSIONS



DFN2020-6D			
Dim	Min	Typ	Max
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	-	0.65	-
L	0.20	0.25	0.30
b	0.25	0.30	0.35
d	-	1.00	-
A	0.60	0.65	0.70
A1	0	0.02	0.05
A3	-	0.152	-
E2	0.95	1.00	1.05
D2	0.65	0.70	0.75
All Dimensions in mm			

8.SOLDERING FOOTPRINT



Dimensions	(mm)
X	0.37
Y	0.45
X1	1.00
Y1	0.80
C	0.65
G	1.00
G1	0.19
Z	1.75
C	0.65